FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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FEEDSTUFFS *Features This Week*

PRODUCTION: Cost of producing broiler meat is calculated in an article starting on **page 18.**

RESEARCH: A company describes its research farms and nutrition laboratories in an article starting on **page 28.**

POULTRY RATIONS: An article discussing problems in the use of high energy rations starts on **page 32.**

MARKETING: Summaries of four talks given at the AFMA Sales Executives Conference concerning economic and market research start on **page 38.**

GRAIN BANK: An economist covers various aspects of grain bank operations in an article starting on **page 62.**

ADDITIVE REGULATIONS: Interpretation and enforcement of additive regulations are covered in an article starting on **page 66.**

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Health Dept. Opposes Cancer Clause Removal

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The Secretary of Health, Education and Welfare this week said flatly that his department would oppose any attempt to take the cancer clause out of the food additives amendment to the Food, Drug and Cosmetic Act.

The Secretary, Arthur S. Flemming, made this statement in Washington in connection with comments on cranberries and use of the weed killer aminotriazole.

The cancer clause, or Delaney clause, is the provision which has put restrictions on the feed industry in connection with the use of estrogens and arsenicals in feeds.

As Mr. Flemming acted to warn the public against purchase of cranberries alleged to be contaminated, he confirmed a broad expansion of Food & Drug Administration policy previously reported in Feedstuffs.

Mr. Flemming said provisions of the Delaney Amendment concerning carcinogens will be applicable straight across the board at FDA, and FDA will not approve any tolerances where there has been a showing of cancer production in test animals. In this enunciation of policy at FDA, Secretary Flemming appears to have taken administrative initiative in making the Delaney food additive amendment regarding carcinogens retroactive to cover provisions of the Miller Amendment enacted a year before, which authorized establishment of tolerance levels for pesticidal chemicals.

Secretary's Statement

Here is what Secretary Flemming said earlier this week which establishes his policy:

"FDA has declined to set any tolerance for any amount of a chemical in foods if the chemical produces cancer when fed to test animals. This principle is set forth in the food additive amendment, enacted last year in a specific provision prohibiting the FDA from setting any tolerance level for such chemical. Even though the pesticide amendment, which is applicable to cranberries, does not contain any such prohibition, the same principle has been applied.

"The application of this principle is necessary in our opinion," he said, "because while in theory there may be a minute quantity of a carcinogen which is safe in foods, in actuality our scientists do not know whether this is true or how to establish a safe tolerance."

Major Significance

This last statement is of major significance to the feed industry, which is currently held under restraints through the application of the FDA major policy statement of last May. This means that FDA policy will be determined by scientists of the government—probably top cancer scientists of the National Institutes of Health rather than FDA officials, and that this condition emphasizes the improbability that the feed industry can anticipate much relief from the conditions under which it now finds itself caught.

(Turn to CANCER CLAUSE, page 121)

Egg, Broiler Output Cut Foreseen—But Still Only Slight

WASHINGTON — Indications of reduced egg and broiler production in 1960 appeared in outlook reports issued this week by the U.S. Department of Agriculture. But because no sharp production cutbacks in the poultry industry are foreseen—except possibly for broilers during part of the year—the aggregate quantity of eggs and poultry meat marketed will not decline much, USDA says.

Prices of eggs, chickens and turkeys may rebound in 1960. For eggs and broilers particularly, the most likely price changes after midspring are increases.

Although the egg-laying flock in early 1960 will be smaller than a year earlier by perhaps 2-4%, USDA says egg production at the beginning of the year will be rising seasonally. By mid-February, as usual, it is likely

(Turn to EGGS, BROILERS, page 121)

Delmarva Seeks Adjustment In 'Excessive Freight Rates'

SALISBURY, MD.—Compensatory adjustment in what it terms "excessive freight rates" is being sought by the Delmarva Poultry Industry, Inc.

The organization says it needs these adjustments "to avert the chaos of industry annihilation," and it must have freight reductions on shipped-in feedstuffs equal to the minimum of one half cent per pound on the live weight production cost of broilers. Reflecting competitive dispensations, freight costs necessarily would be decreased by 25¢ per 100 lb. under existing rail rates on deliveries to the peninsula.

The organization is composed of 6,000 growers, 34 hatcherymen, 22 feed manufacturers and 17 poultry processors. It has an output of more than 600 million pounds of dressed poultry, valued at $200 million annually, and ranks second among the major broiler areas of the U.S.

According to the group, studies show it pays the highest freight rate on feed ingredients of any major area in the East. For example, the current rate on Chicago corn to Delmarva is 58½¢ cwt. and on soybean meal from Decatur, Ill., it is 85¢ cwt.

The freight rate on Chicago corn to Delmarva is $8.61 ton over Memphis, Tenn.; $7.16 over Guntersville, Ala., and $3.76 over Gainesville, Ga. In terms of Decatur soybean meal, Delmarva pays $17 ton, or $3.36 ton over Charlotte, N.C.; $10.98 over Memphis, Tenn.; $9.96 over Guntersville, Ala., and $6.06 over Gainesville, Ga., said the organization.

Freight savings to the South place Delmarva at a disadvantage of up to 1¢ per lb. of ready-to-cook poultry, said James E. Davis, chairman of the DPI transportation committee.

"Excessive freight rates have restrained the expansion of broiler pro-

(Turn to DELMARVA, page 121)

'Market Orientation Industry Need'

By ROGER BERGLUND
Feedstuffs Managing Editor

BUFFALO, N.Y. — The successful feed manufacturer in the future will be market-oriented to both the producer and the consumer, and at the same time committed to those competitively priced services that will result in the ultimate minimum cost structure to the consumer.

This description of tomorrow's successful feed operation was given by I. S. Riggs, chairman of the board of the American Feed Manufacturers Assn., in a talk this week at the Cornell Nutrition Conference in Buffalo.

At the same time, Mr. Riggs warned that "the road to this Valhalla will be strewn with broken bodies, shattered hopes and some abandoned feed mills—not all of us will be able to make it."

The talk by Mr. Riggs, who is vice president of the Quaker Oats Co., Chicago, was part of a program which attracted some 700 persons to the Cornell conference Nov. 12-13 at the Hotel Statler.

In spite of the fact that the business situation for many firms has been less favorable recently, attendance at this "grand-daddy" of nutrition conferences was at or near previous highs.

(Summaries of conference reports on new and recent developments in livestock and poultry nutrition will be found on page 10.)

Future Competition

Discussing changing patterns in population growth and agricultural production and marketing, Mr. Riggs posed the question of how the feed manufacturer can compete "under these conditions in which market orientation may rule supreme."

"It appears," he said, "that one concept may be basic. To get a 'fair share' of Mrs. America's food dollar, we must produce what she wants, what she is willing to pay for, and at the minimum cost.

"And we in feed manufacturing must keep in mind these same cardinal principles for our immediate customers. We must provide competi-

(Turn to CORNELL, page 8)

STORAGE COST SURVEY REPORTED LAGGING

WASHINGTON — The grain storage cost survey undertaken by the U.S. Department of Agriculture is moving along at slower rate than was originally planned, the Grain & Feed Dealers National Assn., Washington, reported this week. GFDNA said the grain division of USDA probably will request permission to extend the survey beyond Nov. 13, and also said it had reports that individual elevator schedules have taken as long as 6-7 days to complete.

PART OF STATEMENT READ AT BUFFALO

Part of the statement by Arthur S. Flemming on the cranberry incident and cancer clause mentioned in the story above was read at the Cornell Nutrition Conference in Buffalo, N.Y., by Dr. Charles G. Durbin of the Food & Drug Administration in connection with a conference talk on feeds and feed additives under federal law. A brief summary of Dr. Durbin's talk appears in a story on the Cornell Conference in this issue of Feedstuffs.

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The regional circulation of this issue is concentrated in the southeastern states

Top of the Hopper

THE "CRANBERRY WAR" being battled in newspaper headlines across the nation has taken some fantastic turns, including the spectacle of political hopefuls lining up to "pass the cranberry test" in the state famous for its cranberry bogs.

The inept handling of this public health problem, claimed to be grossly exaggerated by responsible scientists, has severely damaged an agricultural industry, needlessly frightened consumers and cast unjustified reflections on useful agricultural chemicals. Why a cabinet officer would spring such a trap is a subject in itself. The tremendous play given to the news was almost a certainty because of the manner in which it was released. Whether such a furore was desired by Arthur S. Flemming, secretary of health, education and welfare, is not known.

Regardless of the motivations of the Secretary in giving press conference emphasis to the cranberry statement, the weight of his words must be hefted carefully in relationship to over-all problems in the food additives field.

He stated flatly that his department would oppose any attempt to eliminate the cancer clause from the Food Additives Amendment. This position it would appear, closes one possible "escape" route from the dilemma imposed by the Food and Drug Administration's interpretation of the Delaney clause as it applies to certain feed additives. It is doubtful that Congress would overrule the Department of Health, Education and Welfare in this matter.

Developments of the week on the cancer "scare" front emphasize more strongly than ever that the arguments needed to protect the economic interests of feeders and the industry must have as their source the soundest of scientific evidence.

♥ ♥

MEMBERS OF THE FEED industry will have their best opportunity of the year to really show they are interested in furthering better relationships with veterinarians in a few weeks when the second Veterinary-Nutrition Conference is held in Kansas City. Sponsored by the Midwest Feed Manufacturers Assn., the two days of sessions will get under way Nov. 30.

One feed company is offering to provide the registration fee at the conference for any veterinarian in its trade area. Others may not want to go this far—or they may want to go further—but the idea of encouraging veterinarians to meet with feed men for a mutual swap of opinions is a good one.

Actually, it appears that feed men perhaps need more nudging than the veterinarians. Lloyd Larson, executive vice president of the Midwest, notes that at the first conference last year the veterinarians outnumbered the feed men. Also, at the series of five local conferences held in Missouri last summer, feed men were in the minority.

"It appears to us that there is a lot of conversation on this subject, but we need a few more to start doing something about it," says Mr. Larson. "With the evolution going on in this feed industry, particularly on integrated programs, it is of utmost importance that we broaden our understanding with the veterinarians lest the matter become worse before it becomes better."

One question that should be pursued is the proper basis for reimbursement for veterinarians doing consulting work for feed companies. "This should be given careful attention before it becomes the proverbial football," Mr. Larson comments.

The conference (details elsewhere in this issue) promises to get down to some of the basic issues in feed-veterinary relationships and could well provide a real spark for better understanding "back home" where it must be applied.

(Turn to **TOP OF THE HOPPER**, page 121)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Mixed reports came from the trade this week, but most formula feed manufacturers around the country say demand this week was at least as good as it was a week earlier—and many said improvement could be seen in November's volume. The major item of improvement right now is cattle feeds. And if it weren't for increases in these lines, poor movement of hog and poultry feeds would drag total feed tonnages down to low levels. While many dealers feel there is a tendency to buy feed as the feeder needs it, it appears that record amounts of feedstuffs will be consumed. Cattle and calves on feed are up, and the number of laying hens in U.S. flocks Nov. 1 was only 2% less than a year earlier. The feed industry would like to see an improvement in the hog-corn ratio, but it declined to 11.9 this week from 12 last week. This compares with 17 for the comparable week last year. Wholesale feedstuffs price index advanced 2.2 points to 82 this week compared with 80.6 a year earlier. The feed-grain index, at 64 this week, was up 1.1 points. Feed ratios declined for eggs, chickens and broilers during October, but improved for turkeys, milk, butterfat and hogs. (Ingredient prices in detail on pages 122-124.)

Northwest

Spotted slow periods during October had feed manufacturers in this region thinking that the month would end on the dim side, but that isn't the way it turned out. Most mixers report that October's formula feed business was at least as good and for the most part better than it was during the same month a year earlier. And November is starting off with steady increases in volume, and manufacturers believe this month, too, will wind up ahead of last year's November.

Cattle feeds are the strongest items. Dairy concentrates and mixes seem to be doing the best, with beef feeds running a close second. Hog feeds are running fairly steady, but for some manufacturers they aren't keeping up with last year's volume at this time. Poultry feed business is slow to fair.

Feeders still haven't much time to devote to planning or carrying out their feeding programs. Corn harvesting remains a job to complete, and the soybean harvest is late.

Mill production is keeping up with feed calls. Dealers and feeders don't seem to be doing much in the way of piling up feed supplies.

Very little activity was seen in ingredient markets this week. Demand for soybean meal seems to have leveled off and the millfeed market dropped off a bit. Alfalfa meal held steady.

Southwest

An improvement in feeding ratios is seen by most feedmen in the Southwest as the factor that would improve the so-so formula feed business that prevails. Sales volume this week was about the same or perhaps a shade slower than the previous week. Mills are running five days, normal number of shifts, but schedules are not nearly so tight as they could be and backlogs are virtually non-existent.

High-priced feed ingredients and low prices for end products, particularly hogs, eggs and poultry, tend to discourage many farmers from feeding commercial rations. Even though they realize the wiseness of investment in good feed, they are unwilling to incur out-of-pocket expenses when prices they receive for products are as low as they are now, many sales departments report. Animal numbers are large, so improvement in the feeding ratios, it is believed, would bring an improvement in feed volume.

Currently, cattle feed is the big item for most mills. Cold weather last week in the more southern reaches of the area brought a slight pickup in movement of cattle rations. Dairy cattle feed is also tending to show a seasonal pickup.

Turkey feed is no longer a factor in sales volume, shutting off earlier than usual because of earlier marketing of turkeys. Broiler and laying feed volume is about unchanged.

Swine feeds are in fair demand, but not up to the pace of this spring and summer.

Price lists for next week for the most part will go out unchanged.

Northeast

Feeders got under the wire and bought in carload lots as mixers granted them leeway against rising ingredient prices. The preceding week's price rise held and in some instances additional gains were made. It was thought that the sales upturn would flatten out next week, but it could be forestalled because bad weather is again moving into this area.

Prices of end products were not too husky. Broilers dipped 1¢ in the East to an average of 14½¢ lb., with a low of 13½¢ in some areas. Eggs were about steady and milk held firm.

Some pastures still are being utilized, but demand for dairy feed has pushed it to the fore and now it tops egg mashes and growing feeds in sales turnover. Turkey and broiler feeds trailed the leaders.

Running time of formula feed manufacturers rose to 40 hours last week.

Central States

The weekly survey of this region's feed manufacturing industry fails to reveal much of anything greatly different from what has been maintaining for some time. Business did pick-up, however, just enough to put more of the plants on a full week operating basis. This, in itself, is an encouraging development, although fully expected as a reflection of the change in the weather since the turn of the month plus the advance in prices, which, as usual, stimulated additional buyers' interest.

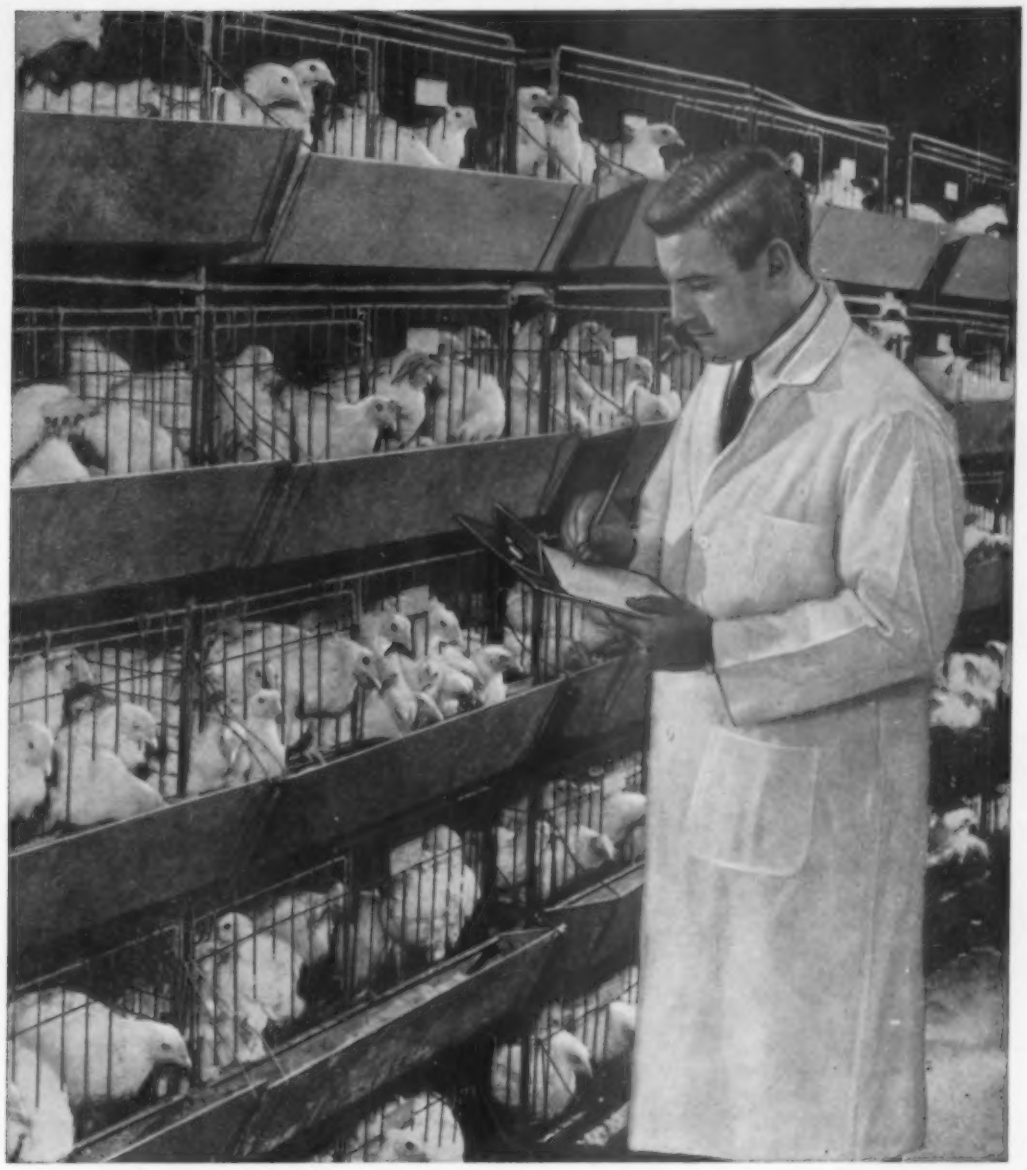
While tonnage is still running behind that of a year ago, it is not enough to be alarming. The recent leveling off in feed grain prices, with corn up about a nickel per bushel from its low point and oats into new high seasonal ground, has undoubtedly had some impact on the mixed feed markets.

We are just around the corner from that period when demand for cattle feed should show betterment. Hogs have shown no inclination to weaken, although neither have they firmed up to any material degree. The situation in the egg and broiler markets certainly could be better.

(Turn to **MARKETS**, page 127)

Peter Hand

DOWN ON THE FARM



To help you produce better feeds, Peter Hand Research Farm conducts thousands of feeding experiments on poultry, swine and cattle. Latest scientific developments —vitamins, antibiotics and additives—are evaluated.

New formulations are tested under every-day farm conditions before they are recommended to feed manufacturers. The farm is comprised of 450 acres and more than a dozen buildings.

Scientists with specialized experience in poultry and livestock nutrition direct all work at the farm. For the answer to any specific feed problem, look for the answer *first* from Peter Hand research.

Continuous studies are made to help improve basic formulas and feeding plans. Consider the Peter Hand Foundation as part of *your own* research program. Find out how—write for the facts.

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Trustee Reports Chemell Assets Worth $100,000

GAINESVILLE, GA.—Assets of the bankrupt Chemell Hatchery organization were reported at an estimated $100,000, and creditor claims which total more than $4 million are apparently worthless, it was reported by W. F. Cummings, trustee.

As hearings continued before J. Ellis Mundy, federal referee in bankruptcy, creditors learned that practically all of the accounts listed as receivable are worthless, and that the Chemell operations have ground to a halt, with the last of the employees due to be dismissed within the week.

Among the accounts listed as receivable is one for more than $690,000 owed by L. A. Chemell to Chemell's Hatchery, and another for more than $613,000 to Gainesville Hatchery, while Mrs. L. A. Chemell was reported to owe Chemell's Hatchery in excess of $11,000, and more than $9,000 to Gainesville Hatchery.

Mr. Cummings, an Atlanta businessman, stated that "the trustee wishes to point out that the sum of approximately $1,304,332.69 is owed by L. A. Chemell, personally. In view of the fact Mr. Chemell has stated that he has very little net worth, his account is considered worthless unless some other assets are located about which the trustee has no knowledge."

At a hearing prior to the filing of bankruptcy, Mr. Chemell testified under oath that he had no idea of what his personal assets were worth, and answered, under direct questioning by attorneys for creditors, that he did not know how much income tax he had paid last year.

Among the claims filed in Judge Mundy's court is one for more than $100,000 by the federal government for income taxes on various Chemell corporations.

So far, it has not been definitely determined how the Chemell organizations became the creditors of L. A. Chemell, and accurate information was not available as to whether the amounts involved represent cash or other negotiable or physical properties.

Mr. Cummings asked for a 45-day extension in which to file a complete inventory of the bankrupt estates.

Judge Mundy set Nov. 24 as the date for the next hearing for creditors of Chemell Breeder Farm, and Dec. 10 for the creditors of other Chemell organizations.

Coronet Sets Lower Minimum Weight

NORFOLK, VA. — Minimum carload weight requirements of Coronet defluorinated phosphate will be reduced from 40 net tons to 30 net tons, it has been announced by Coronet Phosphate Co., division of Smith-Douglass Co., Inc., Norfolk.

Henry Highton, manager, feed phosphorus sales, said approval has been granted by rail carriers, but the effective date has not been determined.

He said the new lower minimum weight will carry the same rail freight rate as the present 40-ton minimum.

Roskamp Installations

CEDAR FALLS, IOWA—Roskamp Huller Manufacturing Co., Inc., Cedar Falls, has announced that during October 22 firms in 10 states installed Roskamp equipment. There were seven in Kansas, six in Iowa, two in Illinois, and one each in South Dakota, New York, Minnesota, Nebraska, North Dakota, Pennsylvania, and Missouri.

POULTRY EXCHANGE BOYCOTT CITED

GAINESVILLE, GA.—Some poultry processors are attempting to boycott the Georgia Poultry Exchange, according to exchange officials, who mentioned a reported meeting of the processors when the boycott plans were said to have been formulated. Several dealers admitted they have been told by certain processors that the auction was closing, and said the processors wanted to book their birds direct. A spokesman for the processors' association declined any comment.

Feed Phosphate Price Changes Made by IMC

SKOKIE, ILL.—International Minerals & Chemical Corp. has announced price increases of $2@2.75 for the company's three feed phosphates. John K. Westberg, sales manager, said the price change became effective Nov. 2.

Dynafos, dicalcium phosphate with a minimum phosphorus content of 18½%, has been increased in price from $83.25 to $86 ton, bagged, with transportation charges from Bonnie, Fla., to destination equalized to total transportation charges from nearest producer's production plant.

Prices for Dynafos in effect in the western slope area are: California, Arizona, Nevada and Utah, $99.90 ton in 100-lb. multiwall bags; Washington, Oregon, Montana and Idaho, $107.15 ton in bags.

Multifos defluorinated phosphate, with a minimum phosphorus content of 18%, is now priced at $71.80 ton in 100-lb. bags, f.o.b. IMC's plant at Wales, Tenn. This is an increase of $2.68.

Defluorofos, a defluorinated phosphate containing at least 13% phosphorus, was increased in price from $51 to $53 ton in bags, f.o.b. IMC's plant at Tupelo, Miss.

Bulk carload prices for all three feed phosphates are $3 ton less than bag rate.

Ex-Gridder to Speak At Chicago Feed Club

CHICAGO — The Chicago Feed Club will have "Pitchin' Paul" Christman, former football player and scout as its guest speaker at its monthly meeting Nov. 20 at the Chicago Furniture Club, according to David A. Mann, secretary.

Mr. Christman was All-American halfback at Missouri for two years, most valuable player of the East-West game, all-pro quarterback for the Cardinals two years, scout for Green Bay Packers, San Francisco 49'ers and Detroit Lions.

Cocktail hour will begin at 5:30, followed by dinner at 6:30. Reservations should be sent to Richard L. Furman, J-M Trading Corp., 323 S. Franklin St., Chicago 6, Ill.

Minnesota to Have New Soybean Plant

ST. CLOUD, MINN. — About 40 acres is being acquired here as a site for a $500,000 soybean processing plant, Central Minnesota Processors, Inc., St. Cloud, said.

The company said growth of soybean production in central Minnesota made the plant feasible. The proposed facility will use about 900,000 bushels of soybeans yearly.

The company has operated a food canning business here for 25 years as the St. Cloud Canning Assn. The firm said it will continue this plant during the 1960 canning season, but will then consolidate its activities at the new location.

Series of Aeration Symposia to Be Given By Hot Spot Detector

DES MOINES, IOWA — Hot Spot Detector, Inc., Des Moines, Iowa, has announced that a series of 40 aeration symposia will be held across the nation, starting Nov. 17.

Howard Johnson, chief engineer of the aeration division of Hot Spot Detector, said the meetings will be open to all persons in the grain or affiliated industries.

Mr. Johnson said that the symposia will explain the basic techniques of aeration, the different types of equipment and installation used and the benefits to be derived from grain aeration.

Grain men and other interested persons across the U.S. will have the opportunity of getting a detailed and professional presentation of the grain aeration process.

Among the subjects to be covered are: Controlling insect and mold growth, and moisture migration; fumigation with aeration equipment; how aeration can reduce turning costs and increase grain storage capacity; the components of aeration systems, including air duct patterns, supply ducts, engineering drawings, fans; how aeration air-flow rate determines cooling time; cubic-feet-per-minute-per-bushel defined; horsepower of aeration fans versus the flow rate of air, and automatic control of aeration systems.

Mr. Johnson said that the general utility of aeration systems for the maintenance of stored grain quality has been effectively demonstrated during the last few years. "Aeration cooling of grain is gaining recognition as an advantageous, economically feasible and convenient method of providing storage temperatures less favorable for mold and insect activity," he stated.

Aeration also can provide more uniform grain temperatures, Mr. Johnson said, thus contributing significantly to the control of moisture migration and "top sweating."

"It has been shown that effective aeration systems can be designed for any type of grain storage structure, flat storage or deep bins, regardless of the shape or size," Mr. Johnson pointed out.

Meetings planned for November and December are:

Nov. 17, Kemp Hotel, Wichita Falls, Kansas; Nov. 18, Sheraton Dallas, Dallas, Texas; Nov. 19, Caprock Hotel, Lubbock, Texas; Nov. 20, Hilton Hotel, Plainview, Texas; Nov. 23, Herring Hotel, Amarillo, Texas; Nov. 24, Sneed Hotel, Dumas, Texas; Nov. 30, Youngblood Hotel, Enid, Okla.; Dec. 9, Holiday Motel, Topeka, Kansas; Dec. 10, Holiday Motel, Salina, Kansas; Dec. 11, Cooper Hotel, Colby, Kansas; Dec. 14, Kansan Motel, Greensburg, Kansas; Dec. 15, Warren Hotel, Garden City, Kansas; Dec. 16, Blue Goose Cafe, Larned, Kansas; Dec. 17, Baker Hotel, Hutchinson, Kansas, and Dec. 18, Broadview Hotel, Wichita, Kansas.

Vilas Names Manager

STORM LAKE, IOWA — Vilas & Co. recently announced the appointment of Dr. John Van Landt, veterinarian, as general manager of its feed division here.

NEBRASKA CONFERENCE SPEAKERS — Two of the speakers who gave talks at the recent Nebraska Feed and Nutrition Conference on the College of Agriculture campus in Lincoln, Neb., are shown in action. Newell Wright (left), manager of the marine division of Central Soya Co., Inc., Ft. Wayne, Ind., points out something on the chart, while Dr. Laurent Michaud, Merck, Sharp & Dohme Research Laboratories, Rahway, N.J., stresses a point.

Ingredients Take On Strong Tone

WASHINGTON—Just about every feed ingredient on the market was stronger in price Nov. 10 than it was a week earlier on Nov. 3, according to the latest nation-wide average bulk prices reported by the Agricultural Marketing Service of the U.S. Department of Agriculture.

Biggest jumps were taken in oilseed meals, animal proteins and grain high-protein feeds.

In a review of recent price trends, USDA reported that October feedstuff prices, reflecting smaller available supplies and increased export interest, advanced about $2 ton.

Soybean meal showed a steady trend during October and averaged $7.40 ton above a year ago when prices dropped an average of $6 month. Cottonseed and linseed meals advanced $6 and $3 ton, respectively. Alfalfa meal went up $3 and at the end of the month averaged $6.50 above a year earlier. Animal protein feeds continued to decline under pressure from plentiful supplies and slack demand.

Wheat millfeed prices held mostly steady during the month and were slightly higher than a year ago.

Average Bulk Prices and Index of Weighted Prices*
(Dollars per ton)

	Nov. 10, 1959	Nov. 3, 1959	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	68.95	66.50	+2.45
Cottonseed meal	68.00	66.10	+1.90
Linseed meal	77.15	76.00	+1.15
Copra cake or meal	68.50	69.00	— .50
Peanut meal	63.00	63.00	...
Index	90.2	87.4	+2.8
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	73.40	71.15	+2.25
Tankage	71.50	70.65	+ .85
Fish meal	116.00	114.50	+1.50
Index	71.8	70.2	+1.6
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed & meal	45.60	44.00	+1.60
Dist. dried grains	48.75	45.70	+3.05
Brewers dried grains	43.30	39.20	+4.10
Index	71.3	67.9	+3.4
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	40.15	39.60	+ .55
Middlings & shorts	42.85	42.25	+ .60
Index	75.0	73.9	+1.1
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	42.85	42.30	+ .55
Rice bran	33.00	33.00	...
Index	69.7	65.8	+3.9
ALFALFA MEAL			
Prices at prin. mkts	55.80	54.25	+1.55
Index	107.4	104.4	+3.0
MOLASSES, FEEDING			
Prices at prin. mtks.	23.00	23.00	...
Index	68.4	68.4	...
ALL FEEDSTUFFS			
Index	82.0	79.8	+2.2
FEED GRAINS			
Prices at prin. mkts.:			
Corn	38.70	37.70	+1.00
Oats	48.50	48.20	+ .30
Barley	43.80	44.10	— .30
Grain sorghums	36.10	36.10	...
Index	64.0	62.9	+1.1

*Base period of index is 1947-49.

Source: Agricultural Marketing Service, USDA.

Dr. LeGear Control Sold to Penick & Co.

NEW YORK — Acquisition of controlling interest in Dr. LeGear, Inc., St. Louis, manufacturer of animal health products, was announced this week by S. B. Penick & Co., New York, agricultural chemical firm.

Penick officials said the St. Louis firm's sales, manufacturing and research activities will remain in St. Louis, and Dr. Daniel H. LeGear will continue as president.

MANEY BROS. MILL & ELEV. CO.
Minneapolis, Minnesota
Distributors in the Upper Midwest States for
SMALL'S DEHYDRATED ALFALFA MEAL

"From Pillar to Post"

In the Fifteenth Century, miscreants were sometimes driven "from post to pillar", i. e., flogged at a whipping post and then forced to dance their way to the pillory. The expression has since changed to "pillar to post", but still is applied to one who is driven from one resource to another—without finding relief anywhere.

Why bounce around "from pillar to post" in search of dozens of ingredients to fortify your feeds when you can get so many of them by specifying Small's Dehydrated Alfalfa? More than 40 valuable nutrient elements have been identified in Small's Dehydrated Alfalfa—plus "unidentified factors" known to promote the growth and health of poultry, swine and cattle. We take extra care in manufacture, storage and delivery to insure that you receive the full benefit of all these extra values . . . one more reason why Small's Dehydrated Alfalfa is the first choice of value-conscious and cost-conscious feed buyers.

ARCHER-DANIELS-MIDLAND CO.
ALFALFA DIVISION
BOX 356 • KANSAS CITY, MO.

FOR FEEDS WITH A FUTURE

Small's dehydrated alfalfa

Europeans Seek Quotes On Dehydrated Alfalfa

KANSAS CITY, MO. — Europe's drouth appears to be creating a greater foreign demand for dehydrated alfalfa, the American Dehydrators Assn. indicated in a recent bulletin.

ADA said it isn't known just how much alfalfa will be available for export, but inquiries are coming in to the Foreign Agricultural Service for quotations on dehydrated alfalfa pellets and good quality baled hay.

Most dehydrating drums around the country won't be running again until next spring. Even California dehydrators expect to be all through by Thanksgiving.

The Foreign Agricultural Service has asked that U.S. dehydrators quote supplies for export in several ways: Dehydrated alfalfa meal packed in paper bags; dehydrated alfalfa meal packed in new burlap bags; dehydrated alfalfa pellets in bulk; dehydrated alfalfa pellets bagged, and baled hay.

ADA said quotations should be f.o.b. port of New York or Gulf Coast port and addressed to the following American embassy officers: Robert N. Anderson, London; Paul C. Minneman, Paris; Elmer A. Reese, Copenhagen; Phil S. Eckert, Bonn, Germany; Howard J. Boggett, Brussels, and Robert H. Reed, The Hague.

Quotations may be sent also to M. Vincent, Secretaire General du Comptoir des Fourrages Deshydrates, 5 Quai Voltaire, Paris 7e, France, and to Crouch Dehydrators, Ltd:, Bridge Farm Mills, Stoke Ferry, Norfolk, England.

Soybean Meal Shows Signs of Leveling Off

By Feedstuffs Correspondent

CHICAGO—After having been on an upward trend for a number of weeks, soybean oil meal began to show signs of leveling off this week. Price changes were inconsequential in comparison with what happened through much of October.

Late last week and early this week, when December meal gave evidence of heading for the $60 mark at Chicago, demand was very brisk—but now that the government soybean crop estimate for Nov. 1 has been released and at least partially digested, less concern over potential meal supplies has been indicated. The official estimate of 528 million bushels of beans was somewhat in excess of what the rank and file of trade had been looking for.

In addition, it was pointed out that when the final report for the year comes out around Dec. 20, there could well be a hike in the soybean acreage estimate.

The Crop Reporting Board has been using a figure just under 22 million acres, which happens to be about 1¼ million less than one put out by C. M. Galvin, private estimator, last summer.

An upward adjustment of only half the difference between the official and the Galvin estimates would mean an additional 15 million bushels of soybeans for the 1959 crop—based on a yield of 24 bu. per acre.

Not only Galvin's estimate but also the estimate on bean acreage put out last summer by the National Soybean Crop Improvement Council was well above the one used officially since then.

HONORARY DEGREE

MEMPHIS, TENN. — Arthur A. Williams, executive vice president, Memphis Board of Trade, was one of four recently selected by the Supreme Council of the Ancient and Accepted Scottish Rite of Freemasonry to receive the 33rd degree.

Dr. Francis Wingert

Dr. R. C. Klussendorf

Dr. N. L. Jacobson

Maurice Johnson

Additional Details Of Vet-Nutrition Meeting Announced

KANSAS CITY — Additional program details for the 2nd annual Veterinary-Nutrition Conference at the Hotel President in Kansas City Nov. 30-Dec. 1 have been announced by the Midwest Feed Manufacturers Assn. The association is sponsoring the conference in cooperation with state veterinary medical associations.

The topic to be discussed by Dr. Francis Wingert will be "Swine-Animal Health as Influenced by Management Under Intensified Production." He is director of swine nutrition at the Cargill-Nutrena Research Farm at Elk River, Minn.

Dr. J. Russell Couch, department of poultry science, Texas A&M College, will discuss "Poultry-Animal Health as Influenced by Management Under Intensified Production." A talk on "Management Under Intensified Dairy Production" will be presented by Dr. N. L. Jacobson, department of animal husbandry at Iowa State University.

Dr. R. C. Klussendorf, director of veterinary medical services for Commercial Solvents Corp., Terre Haute, Ind., will speak on "Productive Health and Stress."

Featured speaker at the evening banquet Nov. 30 will be Maurice Johnson, MFMA president and executive vice president of the Professional Feeds division of Spencer Kellogg & Sons, Inc., Kansas City. He will also speak at the morning session Dec. 1. His topic will be "What the Feed Manufacturer Needs from the Veterinarian."

Other conference speakers will include Dr. Conwell Johnson, General Mills, Inc., Indianola, Iowa; Dr. W. E. Petersen, University of Minnesota; Dr. William Monlox, Iowa State University; Dr. Earl Baldwin, Baldwin Laboratories, Omaha, Neb.; Forrest Goetsch, Doane Agricultural Service, St. Louis; Dr. Donald R. Mackey, veterinarian from Greeley, Colo., and Dr. A. H. Groth, dean of the school of veterinary medicine at the University of Missouri.

Registration, at $10 per person, can be made at the Midwest Feed Manufacturers Assn. office, 20 West 9th St., Bldg., Kansas City 5, Mo.

FEEDMAN DIES

PORTLAND, ORE. — Fred E. Thomas, 64, owner and operator of the Fred Thomas Feed & Seed Co., Portland, died at his home recently. He lived at 7918 S. E. Sunnyside Drive. Mr. Thomas was born in Troy, Idaho, and had lived in Portland the last 30 years. Surviving are his widow, Maude; his mother, Minnie Thomas, and a brother, Walter, all of Portland.

Personal Leadership Key to Successful Selling, Illinois Feed Assn. Told at Clinic

By DON E. ROGERS
Feedstuffs Staff

SPRINGFIELD, ILL.—Selling and sales management rests primarily upon personal leadership capacity.

This was the advice given by Thomas H. Lawrence of Lawrence-Leiter and Co. in his sales clinic presentation to the Illinois Feed Assn. here recently. The meeting was held jointly with the Illinois Poultry & Hatchery Federation.

The representative of the Kansas City management consulting firm stressed the element of "personal capacity to deal with people."

"Making a sale is an intensive function of human relations and requires all the communications skill and ability to understand other people that the individual can muster," he added.

"Actually, the matter of communications calls not only for a knowledge of how other people are likely to behave in the face-to-face sales contacts, but it also calls for considerable self-knowledge by the individual."

Mr. Lawrence created an atmosphere of self-evaluation in the conference delegates in which each person undertook a questionnaire-analysis of some of his sales potentials and attitudes. It was designed to give each person a clear-cut individual evaluation of certain temperament characteristics that might enable him to adjust his sales approach and his sales methods more directly to his customers.

"There is no magic formula for salesmanship," declared Mr. Lawrence. "Actually it is largely a matter of each individual's personal adjustment to the person with whom he is dealing. The popular concept of the dynamic, aggressive, hard-hitting salesman is often quite offensive to certain types of agricultural and rural customers."

Consequently, Mr. Lawrence said, the man who has a quiet and more analytical approach to this type of customer often will be far more successful in meeting the demands of that customer. The whole matter of emotional capacity and ability to take a mature emotional outlook on salesmanship and sales objectives is the real secret of getting through to the customers, according to Mr. Lawrence.

Mr. Lawrence has worked for 15 years with many groups of executive, supervisory and sales personnel in business and industry. During the last three years he has met with groups in the feed and poultry industries to help them examine some of their sales methods and procedures and their personal adjustment to sales situations.

Here are summaries of some of the other talks on the program:

CHANGE IN AMERICAN EATING HABITS—"Any food requiring more than 30 minutes to prepare will be passé in five years," said Leslie Strom, vice president of the Market Research Corp. of America.

"Housewives are spending less and less time in the kitchen," he said, "due in great part to the availability of processed foods."

Mr. Strom also pointed out that only about 7% of the breadstuffs eaten today are home-baked and that two thirds of the cakes used are prepared from commercial mixes.

He described these examples as "the evolution" going on in American homes today and said the average American housewife does not wish to be "plagued with the long meal preparation schedule that faced grandmother."

THE MEANING OF MANAGEMENT—"In the feed and poultry business, there are two important aspects in the success of the individual firm," Robert G. Seymour, director of the executive development center at the Univeristy of Illinois, said.

One is the technical side and the other the managerial side, Mr. Seymour said. The technical side, he said, involves the specialized knowledge and skills that make these businesses different from all others, while the managerial side consists of elements which are common to all types of organized activity. As examples of the latter, Mr. Seymour gave thinking, judging, deciding, problem-solving, leading, devising strategy and motivating others.

Mr. Seymour said that the management job requires skills and knowledge in planning, organizing, directing, controlling and coordinating company efforts in each of the major areas.

"In the American tradition of starting at the bottom," said Mr. Seymour, "most businessmen receive their training in the technical and specialized side of the business. When they move upward in their companies to managerial positions, they find increasingly, today, that management is

ILLINOIS GROUP OFFICERS—New and old officers of the Illinois Feed Assn. and the Illinois Poultry and Hatchery Federation take time out for a group discussion of a successful joint meeting at Springfield where 1,100 delegates turned out. Chatting are (from left): Aubrey E. Harless, secretary-treasurer of the poultry federation; Henry Marlowe, past president of the federation; Stan Taylor, new president of the poultry group, and Ivan R. Miller, retiring president of the Illinois feed group.

just as demanding of specific training and self-development."

The need of the times is for key men in every feed and poultry organization to be balanced, with full regard both for technical and mangerial sides of their business, Mr. Seymour pointed out. "Consistent success and profitable operations require consistent performance in both the technical and managerial sides."

FINANCIAL PROBLEMS AT UNIVERSITY OF ILLINOIS—"At a time when we face great increase in enrollment, we must prepare for restricting that enrollment," Dr. David D. Henry, president, University of Illinois, said.

"At a time when there is a crying need for an increase in specialized training, we are obliged to set limits," said Dr. Henry.

"At a time when your business and the business of the state call for more and more research in the fundamental ideas of science, we are obliged to discourage faculty members from seeking outside funds for research because there is not adequate space in which to do the work," he went on.

"It is my unhappy duty to say to you that we are not ready at the University of Illinois for these demands whose fulfilment is so closely allied to the welfare of your business, your industry, your state," Dr. Henry said.

Dr. Henry stressed the need for a new campus for the Chicago undergraduate division, new facilities and remodeling for research and educational hospitals and the Chicago Professional Colleges and "a long list of basic requirements" for the Urbana campus.

Dr. Henry pointed out some of the work that the university had contributed toward economic growth.

He noted the publications, consultations of specialists and demonstrations, the research of the university, and how "trained brainpower and the development of new ideas have accounted for the success of agriculture in the U.S." As an example of the latter he gave the Dixon Springs Experiment Station of the University of Illinois.

As example of research, Dr. Henry noted the amino acid-energy relationship study, the work with Illinois flocks and birds and others.

Dr. Nicholas Nyardie, director of the Institute of International Studies at Bradley Univeristy in Peoria, Ill., gave a talk praising the American system of free enterprise. The former minister of finance of Hungary compared the Americans' life with that of those behind the Iron Curtain.

Kansas City Feed Club Plans Football Movies

KANSAS CITY—Movies of the Kansas University vs. Oklahoma University football game will be featured at the Nov. 17 meeting of the Kansas City Feed Club at the Wishbone Restaurant.

Present to narrate the film and answer questions will be Don Pierce, publicity man for the K.U. athletic department, and Monte Moore, broadcaster of the games over the K.U. radio network.

The club is currently making plans for a Christmas dinner-dance to be held Dec. 19 in the Town House Hotel, Kansas City.

FEED SALESMEN MEET

DES MOINES, IOWA — Wayne feed salesmen from Iowa and four nearby states recently concluded a two-day sales conference at Hotel Kirkwood. Speakers at the meeting, sponsored by Allied Mills, Inc., included Elmer Lenz of Chicago, Allied president, and E. D. Griffin of Chicago, vice president in charge of sales.

Michigan Economist Sees Fat Cattle Down $1-2 Next Few Months

EAST LANSING, MICH.—Fat cattle prices will probably go down a dollar or two in the next few months, according to an agricultural economist at Michigan State University (see Nov. 7 Feedstuffs).

John Ferris notes that cattle prices increased from fall into winter in each of the past two years.

But a U.S. Department of Agriculture survey found a lot of grain-fed cattle about ready for market. Farmers in 21 states said they intend to sell 24% more cattle in October-November 1959 than they marketed in the same period last year.

"A weight breakdown of cattle on feed on Oct. 1 is usually a better indicator of marketings," Mr. Ferris believes. "These figures suggest about a 16% increase over 1958 in late-fall and early-winter cattle slaughter."

The economist feels 1960 cattle prices will average a bit lower than 1959.

Dairy-Bred Cattle

He also expects dairy-bred cattle prices will decline more next year than choice and prime animals.

In the past, cattlemen usually favored fall-purchased feeder calves over feeder yearlings with declining cattle prices. But Mr. Ferris sees a toss-up between the two this year.

"Calves now cost about $5-6 cwt. more than yearlings—a much wider margin than usual," he points out.

Even so, farmers can probably break even with a lower sale price on calves than on yearlings. That's because calves provide a return for larger amounts of feed, he says.

However, calves take longer in the feedlot. Mr. Ferris feels cattle prices will be lower when calves have been fed out than when yearlings are ready for market. This added risk may offset the lower break-even price with calves.

"A lot more cattle have entered feedlots since July 1959 than in the same period last year," Mr. Ferris notes from the USDA return. "This increase totaled 21% in 13 top beef states. Another source shows a 38% boost in Michigan."

This summer, many feeder cattle buyers and sellers waited to see how price conditions developed. Buyers profited from the delay, as feeder prices have declined $3 cwt. since July.

Mr. Ferris notes two reasons for the decline:

1. Slaughter cattle prices have declined—feeder prices tend to follow.
2. Money has gotten tighter in the last six months, interest rates on intermediate-term loans rose sharply—this discourages borrowing to buy feeder stock.

He feels two other factors are holding feeder prices up to current levels:

1. The record corn crop is keeping corn prices down around 90¢ bu., many farmers are looking for feeder stock as a corn outlet.
2. Range areas got some much-needed rain in late September and October—this may let western producers hold their cattle longer than was expected last summer.

W. Scharnberg Named To New Post at Cargill

CEDAR RAPIDS, IOWA—William L. Scharnberg, vegetable oil traffic manager for Cargill, Inc., at Cedar Rapids, has been named director of all company traffic operations in the Cedar Rapids area.

Mr. Scharnberg will coordinate grain and commodities shipments between Cargill and its livestock and poultry feed subsidiary, Nutrena Feeds. Both firms have plants and offices at Cedar Rapids, and facilities in Washington, Gilmore City, Ft. Dodge and Charles City, Iowa.

USDA Notes Meat Output Rise, Threat to Feeding Profits

WASHINGTON, D. C. — Livestock production and slaughter in 1960 will increase over 1959 with meat output expected to hit a new high, according to a report by the Agricultural Marketing Service of the U.S. Department of Agriculture.

The report points out that cattle and calf slaughter this year is down 6%, and over five million are being added to farm inventories. Numbers likely will continue to increase for several years, with the expanded production resulting in a cyclical increase in slaughter and decrease in prices, the report explains.

If price trends for slaughter cattle should return to a more normal pattern next year, the relative profits among various programs would be almost opposite to this year, says the report. At current feeder prices, profitable systems during the coming feeding year will be those which take advantage of low feed costs. On the other hand, prospects for a slowly declining price level indicate that feeders may be hard pressed to make average profits or better in 1959-60.

Slaughter supplies next year most likely will continue to be dominated by fed cattle, according to the report.

Hogs and sheep and lamb numbers are expected to increase. The outlook for hogs next year is based largely on the increase in supply already in progress and the possibility of a slight reduction in slaughter next fall. Sheep and lamb numbers increased during the last two years and some further gain is being made this year, it goes on.

The supply of hogs during the last half of next year will come largely from the 1960 spring pig crop. The 10-state intentions in September were for a 4% reduction in the first half of the spring season. Such a spring crop would mean that hog prices in the fall and winter of 1960-61 possibly could be higher than this fall and winter, the report adds.

Here are summaries of some of the sections included in the report:

RECORD MEAT OUTPUT EXPECTED—The upward trend in meat production will continue in 1960, but, because of population gains, the consumption per person will be about 6 lb. short of the record 1956 rate.

A gain in supply of beef is almost certain to result from the buildup in cattle numbers. In 1960, the average dressed weight of beef per head slaughtered may not be as high as in 1959 but is expected to be more than offset by a rise in numbers slaughtered. A small gain in pork supplies is probable.

Imports of live animals and meats likely will continue high in 1960, but are not expected to be as large as in 1959 when net imports topped the billion-pound mark for the first time.

Based on the outlook for meat supplies and the likelihood of a continued strong demand for meat, retail meat prices probably will average somewhat lower in 1960 than 1959. Beef prices will likely trend slowly downward.

Retail pork prices likely will follow a more typical pattern. Prices this winter and next spring may show less variation than usual and will be below a year earlier. Pork prices may average close to last summer in summer of 1960. The price level next fall will depend largely on the spring pig crop. However, lower beef prices will tend to limit any pork price rise due to small supplies.

CATTLE NUMBERS TO SET NEW HIGH—Cattle numbers have been increasing cyclically for two years and probably will continue to expand. Eventually this increase will result in an increase in slaughter and a decrease in prices.

The supply of young stock for slaughter has built up so much more and so much faster this time than in previous cycles that slaughter is likely to increase and prices decline earlier than in the past.

The cow herd expansion has been slow enough that a sustained high level of cattle marketings is not likely in the near future. However, beef output per cow and per head of all cattle has been increased so much in the inventory that beef production is likely to expand more than the number of cows.

Total cattle and calf slaughter rel-

(Turn to MEAT OUTPUT, page 121)

ADM Adds Salesman To Equipment Staff

KANSAS CITY—Appointment of Sidney E. Brong to the sales staff of Archer-Daniels-Midland Co.'s equipment department was announced by Frank D. Allen, equipment department sales manager.

Sidney E. Brong

Mr. Brong, formerly sales manager of the bulk truck division of Sprout, Waldron & Co., Muncy, Pa., will headquarter at the offices of the equipment department in Kansas City.

ADM's equipment department designs, engineers and manufactures equipment for the formula feed, flour, chemical and alfalfa industries. This includes bulk storage facilities, automatic handling devices, dehydrating equipment and custom machinery for special uses. The department also supervises the construction of feed mills and similar installations and installs equipment and machinery on a "turn key" basis.

Mr. Brong will handle the sales of unit machines and equipment manufactured by other companies and distributed by ADM.

Mr. Brong is a graduate of Parks College of Aeronautical Technology with a bachelor's degree in aeronautical engineering. He also has a master's degree in industrial education from Pennsylvania State University. Prior to his association with Sprout-Waldron he was aviation department head and director of the evening school at Williamsport Technical Institute, Williamsport, Pa., and training director of the Montrose division of Bendix Aviation Corp.

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(Continued from page 1)

tively priced services, for we are competing among ourselves for the farmer's feed dollar on many things—quality, research, price, service, delivery and financing.

"I must warn you—we can't expect to be competitive with all of our competition on each of these services, any more than we can give our customer all of the services he dreams of, before he sees the price tag on those services.

"Our ultimate objective must be to have a total minimum cost structure, at a price the purchaser will pay, and with a volume that will make both our operation and his profitable, and profitable for Mrs. America as well."

The Family Farm

Mr. Riggs referred to trends toward fewer and larger farming operations, but he predicted that the family size farm, while changing, will continue for many years. Also, he emphasized that in both agricultural production and feed manufacturing, economies and efficiency within the farm or plant are often a more important means of increasing income than is volume expansion alone.

In discussing farm numbers and size, Mr. Riggs observed that the nation's current poultry and pork needs could be produced by only 2,500 laying flocks of 100,000 birds each, 20,000 broiler houses of 20,000 bird capacity, 800 turkey farms with two annual batches of 50,000 birds, and 60,000 farms with 100 sows producing two 8-pig litters per year.

"This thought," Mr. Riggs commented, "might lead one to strong drink. If it could be true, feed plants could be bought for a dime a dozen eventually. Yet, the likelihood of this happening seems so remote that, while it is interesting speculation, it seems highly improbable to me.

"Bigness alone does not necessarily mean production problems will be less or efficiency greater. The integrated operation today is only as good as the sum total of its parts, and these parts, often competitively striving for management attention, become less efficient than their counterparts under intelligent, independent management. While size is popularly associated with efficiency, this isn't necessarily true. Size may also create problems which don't occur in smaller, more specialized operations."

Importance of Efficiency

Mr. Riggs noted that traditionally in the farm economy, great stress has been put on volume. But those who have not adapted to the lower cost methods fail to achieve satisfactory results regardless of volume.

"Volume won't help you much in the broiler business today unless you have top-notch efficiency," he said. "A 1¢ reduction in cost per pound on 10,000 broilers is equivalent to the increased income on a 10,000 increase in output at the same production basis. Those who are concentrating now on cost reductions certainly are preparing better for the future than those striving only to maintain income on a narrow margin by increasing output."

In feed manufacturing as well as farming, Mr. Riggs noted that opportunities for improving internal efficiency too frequently are overlooked or neglected.

"Is more volume for feed mills in high cost situations a successful, long-run solution to improve profits?" Mr. Riggs asked. "Would it not be better to achieve cost reductions internally than to try to overcome this problem with more volume through contracting, wild financing, etc.?"

Mr. Riggs also observed that changes in population patterns will affect the feed business.

"Many present feed mills, located in heavily populated areas likely will be unable to avoid strangulation by urban development around them," he said. "Shifting human populations, improved feed conversion, better facilities and equipment design are influencing plant locations. Being close to sources of raw materials for feed manufacturing is of declining importance as feed efficiency improves.

"Farmers must be oriented to their market, too. Mrs. America wants her food at what she considers fair prices. She will not buy foods in volume with high transportation costs included. When food must be shipped long distances, invariably the producers get the consumption center price minus the transportation cost."

Feed Price Outlook

A look at the livestock production and feed picture for the year ahead was provided by Dr. L. C. Cunningham, Cornell agricultural economist. Discussing the feed price outlook, he predicted that prices will be steady to somewhat lower.

"For the current season," he said, "price strengthening factors include more hogs and cattle and stronger export demand for grains and oilseeds. Price depressing influences include lower hog and poultry prices, and more corn and grain sorghums. The corn price support is higher; the soybean price support is lower."

Dr. Cunningham said that corn prices are expected to strengthen seasonally but run somewhat lower during the next six months than a year ago. Small grain prices may exceed year-ago levels, but grain sorghum prices will be lower.

Despite early season strength, he continued, soybean meal prices are not expected to average as high in 1959-60 as last year. Lower cottonseed meal prices also are in prospect.

Role of Colleges

Dr. C. E. Palm, dean of agriculture at Cornell University, outlined for the feed men the role of the agricultural college in modern agriculture. He described both problems and opportunities in teaching, research and extension, among other things. He mentioned the need to recruit more good students for agriculture, to expand basic research and coordinate research efforts, and to adapt extension work to agricultural changes.

Dr. C. M. McCay of Cornell had been scheduled to discuss the impact of current public opinion on the use of foods. However, he recently suffered a stroke and was unable to appear. He currently is recovering at his home.

Summaries of all but two of the technical papers will be found on page 10. Those by Dr. R. G. Warner of Cornell and Dr. Hjalmar Clausen of Denmark will be reviewed in Feedstuffs next week.

The conference was sponsored by Cornell University, Ithaca, N.Y., in cooperation with the AFMA. Dr. M. L. Scott of the Cornell poultry department was chairman

ANIMAL FEEDS AND FEED ADDITIVES UNDER FEDERAL LAW —"Technical developments in the animal feed industry require both the state feed control officials and the Federal Food and Drug Administration to devote an ever increasing amount of time to it," Dr. Charles G. Durbin said. Dr. Durbin is veterinary medical director of the Food and Drug Administration.

Dr. Durbin noted the development of the feed industry, saying, "Not too many years ago, an animal feed was an uncomplicated article consisting simply of products of the soil used as a source of nourishment.

"Scientific developments in the production of livestock and poultry and the advent of medicated feeds have required numerous changes in the pattern of control just as they have in the formulation and production of animal feeds," he added.

Dr. Durbin summarized the situation under the Federal Food, Drug and Cosmetic Act and outlined the provisions.

"Substances covered by the Food Additives Amendment are those additives not generally recognized by competent experts as having been adequately shown to be safe under the conditions of their intended use," he said. "The amendment covers substances that are added intentionally to food as well as those that may reasonably be expected to become a component of food. Substances used in food or feeds that are generally recognized as safe because of experience based on such use or which have been established as safe through scientific procedures are exempt from the provisions of the amendment. Also exempt are substances that have had prior approval by the government for use in foods or feeds under the Federal Food, Drug and Cosmetic Act, the Meat Inspection Act and Poultry Products Inspection Act.

"Briefly, the new amendment makes the following requirements with respect to additives:

"(1) The available data must establish that the proposed use of the additive under the conditions to be specified in the regulation will be safe.

"(2) No additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal or if it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animal.

"(3) The additive must not, under the proposed conditions of use, promote deception or otherwise cause a food to become misbranded or adulterated under any provisions of the act.

"(4) Where it is necessary to affix a tolerance limitation in or to assure that the proposed use is safe, the tolerance set must not be greater than for the amount necessary to achieve the intended physical or other technical effect, and none will be permitted if the proposed use fails to accomplish this effect."

The Food, Drug and Cosmetic Act is a consumer protection law, Dr. Durbin added. It forbids interstate commerce in adulterated or misbranded foods, drugs and devices and cosmetics. Medicated animal feeds are subject to the same provisions of the law as are the foods and drugs for humans, he noted.

"Specifically, these include the new drug provisions, the certifiable antibiotics provisions, the pesticide chemical amendment of the act and, the most recent, the food additive provisions of the law," Dr. Durbin said.

Program Planned for Missouri Sheep Day

COLUMBIA, MO.—The kind of creep rations lambs like best, the effectiveness of the new organic phosphate "Rulene" for worming sheep, and the general outlook for sheep in Missouri will be topics of discussion during the University of Missouri Sheep Day Nov. 21.

Dr. C. V. Ross, who is in charge of sheep research at the university, said the program is designed to interest all sheep producers—feeders, and commercial and purebred breeders.

Among other subjects to be discussed at the morning session starting at 9 a.m. at the Livestock Pavilion will be the kind and amount of protein supplement needed by ewes wintered on corn silage, adding salt to lamb fattening rations, and possible benefits of adding dicalcium phosphate to a phenothiazine-salt mixture for grazing lambs.

Highlight of the afternoon program will be a discussion on research needed to promote the sheep industry, by Prof. Don S. Bell, Ohio Agricultural Experiment Station. Glenn A. Grimes, extension marketing specialist, will discuss the sheep outlook for Missouri.

A look at the Australian sheep industry will be presented by Dr. W. H. Pfander, University of Missouri animal nutritionist, who spent the past year in that country.

Pfizer to Give Cash Awards in Collegiate Meat Judging Event

CHICAGO—Cash awards will be made again this year to the top three teams in the intercollegiate meat judging contest by the agricultural division of Chas. Pfizer & Co., Inc.

The competition, a feature of the International Livestock Exposition, is sponsored by the National Live Stock and Meat Board.

A donor in the event for the past two years, Pfizer's cash awards this year again will be received by the three high scoring teams on behalf of the land-grant colleges they represent. The money will go to finance appropriate research activities at these schools. Twenty-five different college teams entered the 1958 competition.

Last year, Texas A&M College won the $1,000 first prize offered by Pfizer. Runners-up were Oklahoma State University of Agriculture & Applied Science, receiving a $500 prize, and Iowa State University, receiving $250.

Presentation of the 1959 awards on behalf of Pfizer will be made on Dec. 2. At the same time, the first-place team will take possession for one year of a rotating challenge trophy provided by the livestock and meat board.

In announcing that Pfizer will provide the awards for a third year, J. Jerome Thompson, firm vice president and general maanger of the agricultural division, said that Pfizer is pleased to join the livestock and meat board in recognizing outstanding talent in college students of agriculture. Mr. Thompson added: "Animal agriculture continues to play an increasingly greater role in the lives of healthy, well-fed Americans, and it is fitting and necessary that we recognize tomorrow's leaders in this important industry."

Yieldmor Announces Poultry Clinic Program

PIQUA, OHIO—The Yieldmor Feeds, Inc., annual broiler and poultry management and disease control clinic will be held Nov. 19 in the Elks Ballroom here.

Speakers scheduled for the morning include: Bruce R. Davisson, secretary, the New Ohio Poultry Assn.; Dr. Edward C. Naber, Ohio State University, "Feeding and Rearing Methods for Growing Replacement Pullets," and W. S. Thompson, "Protection for the Poultryman." Dr. A. R. Winter, Ohio State University, will be moderator for a broiler and poultry management clinic.

The afternoon program will include: C. M. Sims, managing director, Piqua Chamber of Commerce; Dr. H. E. Goldstein, veterinarian, Ohio State University, "Future Programs for the Ohio Diagnostic Laboratory," and Dr. Paul Clayton, Ohio State University, "Future of the Poultry Industry in the Midwest." Dr. Glyde A. Marsh, veterinarian, Ohio State University, will be moderator for a disease control clinic.

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New Research on Oils, Other Poultry Topics Covered at Cornell Conference

By ROGER BERGLUND
Feedstuffs Managing Editor

BUFFALO, N.Y. — The growth stimulating effect of fats and oils—including soybean oil and other fractions of soybeans— was among the poultry nutrition topics on which attention was focused at the Cornell Nutrition Conference this week.

The conference, sponsored by Cornell University in cooperation with the American Feed Manufacturers Assn., was held Nov. 12-13 at the Hotel Statler in Buffalo.

More than a score of speakers, including Cornell scientists and guest speakers, presented reports on some of the latest developments in poultry and livestock nutrition. The presentations included a number of review papers as well as reports on new research findings.

Research on the role of fats and oils in chick nutrition was discussed by USDA and Cornell scientists. The Cornell report noted that attempts to use whole soybeans as a source of the growth stimulating properties of soybean oil have been unsuccessful, while unextracted soybean flakes have been found to be effective in stimulating growth. It was suggested that to achieve maximum value of unextracted flakes, processing conditions different from those used for commercial soybean oil meal production may be required.

Other poultry nutrition discussions on the program included the following:

● A summary of several years of Cornell observations on restricted feeding of growing pullets.

● A review of research reports on tranquilizers in poultry feeds and also in livestock feeds.

● A report indicating that formulation and use of iodinated casein can result in production of leaner ducks.

● Information on the amino acid glycine in chick nutrition.

● Research findings on the role of choline and zinc in bone formation of the chick.

Summaries of these presentations follow:

FATS AND OILS: THEIR ROLE IN CHICK NUTRITION—A discussion of the growth stimulating effects of fats and oils was part of a presention by Dr. C. A. Denton of USDA's Agricultural Research Service, Beltsville, Md.

"Are carbohydrate and fat calories the same?" it was asked in a paper by Dr. Denton and H. Menge. "If we use as a criterion the accepted definition of a calorie, we must agree that they are equal and the same. But are they equal so far as the chick is concerned? At the present time, this is a very provocative question."

Dr. Denton cited USDA work in which egg yolk stimulated chick growth. It was shown that the activity in the egg yolk is fat soluble. Other work on the presence of a growth factor in yolk also was mentioned.

Cited, too, was Illinois work. The first Illinois report suggested that the growth promoting effect is due to presence of a fish factor. The second indicated that corn oil would perform as well as egg oil when the two oils were substituted. It was concluded that substitution of fat calories for carbohydrate calories will stimulate chick growth. The third Illinois report indicated the larger part of the response from yolk is due to a better balance of nutrients rather than a growth factor.

Dr. Denton went on to tell of other USDA work and then noted that, using the Illinois diet and procedures, they ran several trials with egg oil and corn oil. In one of four trials, egg oil gave a significant response at the 1% level and in three of four trials at the 5% level. Corn oil gave a significant response in one of three trials at the 1% level and in one of three at the 5% level.

"In general," said Dr. Denton, "These data agree with those of Scott et al. (Illinois) in that fat calories substituted for carbohydrate calories on an isocaloric basis will stimulate chick growth. However, we do not interpret our data as precluding the presence of a growth promotant in egg oil and other oils. This interpretation is in agreement with the latest report from Cornell."

GROWTH STIMULATING EFFECT OF SOYBEAN OIL AND OTHER FRACTIONS OF SOYBEANS—Recent Cornell research in which soybean oil shows growth stimulating properties for the chick was discussed in a paper by L. B. Carew, Jr., D. T. Hopkins, Ruther Renner and F. W. Hill (now at California).

Research to date, it was noted, has not shown conclusively whether this effect is due to unidentified factors, a specific metabolic effect of fats per se, energy concentration or essential fatty acids, though the latter seems least likely.

Attempts to use whole soybeans as a source of the growth stimulating properties of soybean oil have been unsuccessful. In contrast to this, unextracted soybean flakes have been found to be effective in stimulating growth. The failure of whole soybeans to be effective is apparently not related to the time and temperature of heat treatment since the conditions employed in these experiments have been shown to be optimum for both growth and energy yield. That digestibility of the oil may be the determining factor is indicated by poor utilization of the oil in whole beans as compared to unextracted soybean flakes and extracted oil. It is possible that to achieve maximum value of unextracted flakes, processing conditions different from those used for commercial soybean oil meal production may be required.

The unextracted flakes used at Cornell were prepared by dehulling and flaking soybeans in a commercial soy plant. They were autoclaved for 40 minutes at 107° C. (approximately 4 lb. pressure) in a manner similar to the previous work with whole beans. In three experiments with White Plymouth Rock males, growth responses of 10% were obtained with heated unextracted flakes, which were equal to or slightly greater than obtained with 10.8% soybean oil.

A possible explanation for the effectiveness of full-fat flakes, the scientists reported, is that flaking causes disruption of cellular structure which may allow the chick to utilize the oil more effectively than in the case of whole beans. Digestibility studies show the oil in unextracted flakes is about 90% utilized, which is intermediate between that for whole beans (80%) and extracted oil (98%).

In one large scale experiment, unextracted dehulled flakes, heated in commercial soy processing equipment using conditions typical of soybean meal production, were not effective in stimulating growth in a broiler ration. This would suggest that some variation in the method of heat treatment employed in the laboratory as compared to commercial practices is responsible for the growth stimulation obtained with full-fat flakes.

The reason why whole beans are not as effective as unextracted flakes in promoting growth is not yet clear, the researchers pointed out. The Cornell data suggest that the manner in which they are processed holds the clue. However, the effects of dehulling, storage time and moisture content as well as levels of natural and synthetic antioxidants will be considered in later work.

OBSERVATIONS ON RESTRICTED FEEDING OF GROWING PULLETS—Dr. J. H. Bruckner presented a summary indicating the general nature of the findings of Cornell work in this area over the past eight years. The final answer to the questions raised has not been found, he noted, but the results reported are expected to contribute to it.

In a paper by Dr. Bruckner and Dr. F. W. Hill (now at California), it was pointed out that there has been a wide variability from year to year in the general level of performance and the difference between rearing treatments. Limitations of the data were mentioned, but recognizing these, the following general conclusions were said to appear justified:

1. Satisfactory pullets can be reared with a wide variety of feeding programs, including restriction of feed intake to 70-80% of normal.

2. Rearing mortality tends to be higher and adult mortality tends to be lower when pullets are reared on a restricted level of feed intake.

3. Differences in rate of egg production due to rearing nutrition were relatively small and highly variable, and did not show any consistent advantage for any single feeding program.

4. Time of sexual maturity was delayed approximately two weeks by restricting feed intake to 70-80% of normal during the period 8-22 weeks of age. Egg size, when measured at the same chronological age, was unaffected by previous rearing treatment.

5. Using a ration designed to limit only energy consumption, as contrasted to proportional limitation of all nutrients, resulted in a relatively clear cut advantage for restricted pullets in the most recent experiment. This may indicate need for special considerations in the formulation of rations for limited intake systems.

6. The effects of rearing treatment on adult productivity are part of a complex set of interrelationships involving strain characteristics, environment, disease and nutrition. It would seem unlikely that one rearing system would be best for all or even most conditions. In fact, the adaptability of the chicken to the wide range of rearing treatments studied seems more remarkable than the differences observed between them.

USE OF TRANQUILIZERS IN ANIMAL FEEDS — "The usefulness of feeding tranquilizers to farm animals seems to be rather limited because improvement in performance is usually slight and does not seem consistent from experiment to experiment," said Dr. A. van Tienhoven of the Cornell poultry department in a review of information on tranquilizers for both poultry and livestock.

"Tranquilizers may be most useful in special feeds, such as those to be fed to animals before rounding them up, or in cases of acute stress which cannot be alleviated by normal management procedures."

Dr. van Tienhoven said that based on pharmacological effects of the drugs, there might be beneficial effects under certain conditions: (1) In breeds of animals and other conditions where fighting and competition cause either damage or restlessness with resulting waste of energy. (2) Under conditions which increase restlessness and possibly fear, such as might be encountered during shipment over long distances. (3) Some tranquilizers, such as reserpine, have a marked hypotensive effect, and thus feeding tranquilizers may reduce losses in cases where high blood pressure causes death. There is some evidence that aneurisms in turkeys might be due to high blood pressure and that reserpine feeding can reduce the losses. (4) Tranquilizers may, by virtue of their effect on the hypothalmus, reduce the response of animals to heat stress. Use of tranquilizers may merit consideration in hot climates. (5) Under conditions of crowding, reserpine will, at least in mice, reduce the fighting and partially prevent certain conditions induced by crowding.

Dr. van Tienhoven went on to discuss results for various species. In

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Feed Men Hear Discussions Of Ruminant Feeding Studies

BUFFALO, N.Y.—Both review information and reports on new research findings were included in Cornell Nutrition Conference presentations on ruminant and swine nutrition topics of interest to animal scientists and industry. And the discussions covered subjects of both immediate and potential interest and importance to nutritionists and other feed men.

Scientists from Cornell University and other institutions presented papers on several aspects of beef cattle, sheep and dairy nutrition, plus certain phases of swine feeding.

The discussions included the following:

● A North Carolina report on the role of sodium and potassium cations in volatile fatty acid metabolism of ruminants. "It would seem," said the speaker, "that in the not too distant future, primarily grain diets will be feasible for ruminants, and that how much hay or grain is included in the ruminant ration may be governed primarily by the respective prices of these commodities."

● A paper on the effect of plane of nutrition on livestock performance, including the observation that the productive life of the dairy cow appears to be inversely related to the plane of nutrition provided during the rearing period.

● A Cornell scientist's review of the scientific literature on the use of various additives in ruminant rations.

● A discussion of the sense of taste in domestic animals (livestock and poultry), including comments on certain phases of Cornell research in this field.

● An analysis of data on the variation among dairy cows in their roughage appetite and the efficiency of utilization.

● A report indicating that inclusion in feed is one of the most promising developments in livestock and poultry pest control by systemic insecticides.

● A talk designed to provide information on the preparation and use of grain recommendations for dairy cows as calculated by electronic computers.

● A paper on the relationship between selenium, muscular dystrophy and other factors in animal nutrition.

● An extensive review of recent

(Turn to RUMINANT, page 114)

some experiments reserpine and also chlorpromazine have increased growth of chicks to 27 and 38 days, depending also on breed of chicken used. A decrease in variability of body weights after reserpine and chlorpromazine feeding also was noted. Another report told of no beneficial effect when reserpine was fed to chickens on the range.

"With respect to egg production," said Dr. van Tienhoven, "trifluoperazine has been reported to stimulate egg production but with a concurrent decrease in shell thickness. The feeding of reserpine to laying hens has not given clear cut results." Some researchers reported no effect on egg production, egg quality or egg weight but found that incidence of checks was reduced by reserpine. Some observed that reserpine reduced feed consumption of laying hens and had a beneficial effect on egg weight and albumin height, although reserpine did not prevent reduction in egg weight, shell thickness or albumin height induced by temperatures of 88-92° F. for 14 days. Heat stress-induced loss in body weight, however, was prevented.

Reserpine does not seem to stimulate growth of turkeys, the speaker said. No published data were available on swine, but Pond found no beneficial effect on growth or carcass quality.

Of the production characters studied in beef cattle, only daily gain seems to be affected, said Dr. van Tienhoven. Hydroxyzine has been reported to increase gains, but the response is not always observed. Reserpine has increased gain and in one experiment also carcass grade.

Hydroxyzine has been reported to increase sheep gain, but others did not find such effect. Reserpine and Rauwolfia extracts fed to lambs have resulted in slightly increased gains in some experiments but not in others.

Although not a tranquilizer, sodium pentobarbital feeding is said to have practical implication in improving the picking quality of broilers in the processing plant.

STUDIES ON FEEDING FOR LEANER DUCKS—The results of all of the duck studies at Cornell during the past three to four years show that it is possible to formulate economical rations which will aid in production of leaner ducks, said Dr. M. L. Scott. Further supplementation of these rations with iodinated casein should cause a further slight improvement in carcass quality.

A paper by Dr. Scott, R. C. Baker and E. Dougherty III told, for one thing, of experiments with different energy-protein ratios. Results of certain trials show that increasing protein content above 18% caused a decrease in fat content of the carcass but did not produce a marked increase in protein content. Loss of fat was largely replaced by an increase in moisture content.

After conducting numerous studies in which the ratio of energy to protein was altered in a variety of ways, it was found that it is possible to produce marked changes in carcass fat composition without appreciably changing growth or feed efficiency.

Efficiency of feed utilization was improved as the energy content of the diet was increased, in the range of between 800 and 1,250 Calories of metabolizable energy per pound.

Duck carcass fat content increased in direct proportion to increases in the ratio of energy to protein over the entire range of energy-protein ratios studied. Conversely, with diets of equivalent energy-protein ratios, carcass fat content was approximately equal even though the rations varied considerably in energy content.

Results of six experiments under commercial conditions showed that supplementation of a simple practical duck ration with iodinated casein (Protamone) at levels of 50-150 grams per ton promoted improved growth, feathering and market finish. Iodinated casein at these levels did not decrease feed efficiency. Carcass fat content was decreased by supplementing the basal ration with 50-200 grams of iodinated casein per ton.

GLYCINE IN POULTRY NUTRITION—Glycine is an amino acid that is placed in the twilight zone between an essential amino acid and a nonessential amino acid for the chick, it was pointed out by M. C. Nesheim of Cornell. Unlike the rest of the essential amino acids, glycine can be synthesized in large amounts by the chick. However, under certain conditions, the synthesis is not adequate and dietary glycine must be supplied for maximum performance.

Present basic information about glycine nutrition, the scientist said, does not permit predicting precisely if a ration may be deficient in glycine based on analytical values alone. The glycine requirement of the chick seems to vary over a rather large range of values and the factors that affect rate of glycine synthesis and glycine demand by the chick are not well known. It does not seem to be possible to consider glycine nutrition in the same light as other amino acids, and nutritionists must recognize the special nature of this amino acid when evaluating the glycine adequacy of a diet.

ROLE OF CHOLINE AND ZINC IN BONE FORMATION OF THE CHICK—Cornell workers have examined several deficiencies in an attempt to ascertain the biochemical lesions responsible for the production of abnormal bone formation in chicks, R. M. Leach, Jr., reported. Both choline and zinc deficiencies have been found to cause alterations in cartilage lipid content, it was noted in a paper by the speaker and L. J. Daniel and L. C. Norris.

In choline deficiency, stilbestrol has been effective in reducing the severity of hock enlargement and in correcting alterations in cartilage lipid content caused by this deficiency. These results support the conclusion that the antiperotic properties of choline are mediated through the phospholipid lecithin.

Zinc deficiency results in a reduction in the cephalin, rather than the lecithin, content of the epiphyseal cartilage. Further studies are being conducted in order to determine the cephalins which are responsible for the changes noted.

GERMAN VISITORS—Two German visitors, Horst Kathmann (left) and Clemens Koldehoff (right), are shown with Sam R. Honegger in the new poultry laboratories at the research farm of Honeggers' & Co., Inc. The two visitors recently spent three weeks at the Honegger farm studying nutrition, housing and sanitation. Mr. Kathmann and Mr. Koldehoff are employed as flock service specialists in their family's hatchery operation in northern Germany. Their hatchery, feed mill, farms, restaurants and shops employ 150 workers.

A. O. ANDELIN DIES

IDAHO FALLS, IDAHO—Aubrey O. Andelin, 70, president of the Eastern Idaho Grain Trading Assn., died recently of a heart attack. Mr. Andelin organized the association in 1948.

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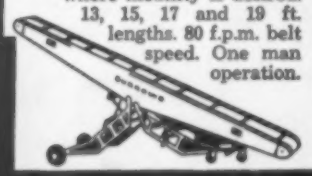

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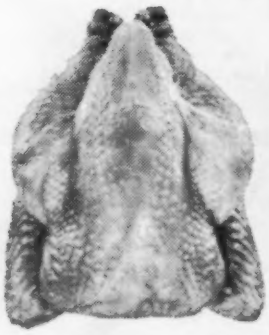

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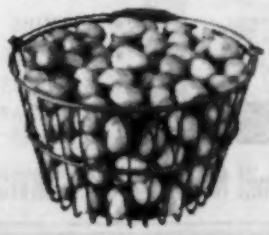

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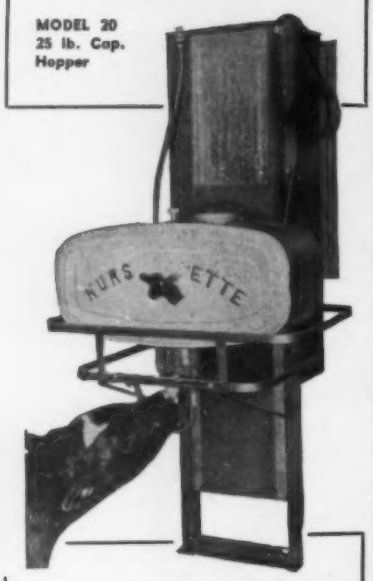

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California Conference

Authorities Express Thoughts On Processing, Formulation

FRESNO, CAL.—Californians who assembled here for their state's recent Animal Industry Conference, heard thoughts expressed by many authorities in the areas of pelleting, wafering, specialized feed manufacturing, linear programming and machine calculation in feed formulation, poultry and livestock nutrition, energy level measurement, mineral supplementation, feed conversion efficiency and veterinarian-feedman cooperation.

Brought out in the conference talks were these observations:

- The feeding of finely ground and pelleted hay to lactating cows must be practiced with caution.
- Too often die specifications are not given sufficient consideration in the installation and operation of pelleting facilities.
- A satisfactory field wafering machine is expected to be on the market within a few years.
- Satisfying the needs of the specialized feeder has been the primary factor leading to the building of a variety of small to medium sized mills.
- Linear programming is a valuable tool in improving the efficiency of feed formulation and "there is no mill mixing feed for sale that will be able to afford not to have its formulas machine-calculated."
- Valuable results have been obtained at Oregon State College regarding increased utilization of barley by broilers and layers, but there is considerable investigation yet to be done.
- Cornell researchers have observed that soybean oil increased significantly the growth of chicks fed practical broiler rations.
- There is still some question as to whether it can be stated that nutritional muscular dystrophy in poultry is definitely caused by vitamin E.
- Total digestible nutrients and digestible energy are not satisfactory measures of the energy values of molasses when fed at various levels.
- Mineral supplements "should be used properly to balance the mineral requirements of a given ration for a given class of livestock."
- More hogs could be raised in California through the development and use of progressive production methods.
- Direct contacts among veterinarians, feedmen and farmers promote cooperation.
- Floor birds have produced more eggs than cage birds on a non-culled basis in California random sample tests.
- The feed industry faces the technical challenge of improving efficiency in feed conversion.

(A conference talk on the opportunities and responsibilities in the feed industry was reviewed in the Nov. 7 issue of Feedstuffs.)

Summaries of talks heard by the 300 feed men at the conference follow:

PELLETED HAY FOR DAIRY CATTLE—For the time being, said Dr. Magnar Ronning of the University of California, the feeding of finely ground and pelleted hay to lactating cows must be practiced with due caution.

The butterfat percentage of the milk produced might decrease, in some cases very markedly, Dr. Ronning noted. The depression of milk fat production may be especially severe in rations involving high concentrate intakes, of the order of 30% or more of the ration.

The fineness of grind has been suggested as influencing the extent of the drop in butterfat, and Dr. Ronning discussed research findings in this regard. However, he said, much more concrete data need to be collected before any definite statements can be made on this question.

The effect upon butterfat production, it was pointed out, may be prevented by the feeding of long roughage equivalent to at least 6 lb. long hay, in conjunction with the pelleted hay.

In connection with his presentation, Dr. Ronning noted that the appealing aspect of pelleted hay for dairy cattle is the potential economy which may be realized from mechanical methods of handling and from compact bulk storage. Some, erroneously, have hoped for a nutritionally superior hay through pelleting. Possibly cows could be induced to consume more hay when pelleted, but the mechanical process of grinding and pelleting should not be expected to alter other nutritional qualities.

PELLETING FEEDS—Suggestions on ways to improve efficiency and lower cost of pelleting were offered by Al Alessio of the California Pellet Mill Co., San Francisco. Mr. Alessio covered the various aspects of installation and operation of pelleting facilities.

In connection with operation, he said that too often die specifications are not given sufficient consideration.

"If I can get only one idea over," he said, "I would like it to be this. Die specifications will vary for different materials. Be sure the die you are using is suited to the material you are pelleting.

"When setting up die specifications on a new material, I personally always lean towards a die which will produce a pellet on the soft side. A man will quickly decide that a pellet is too soft to suit his requirements and request a thicker die. On the other hand, very, very seldom will a man complain that the pellet is too hard.

"It is often difficult to detect a great deal of difference in appearance between the pellet made on exactly the right die and one which is considerably too thick. Often the only indication that the pellet is being made excessively hard is the reduced production rate."

Regarding die speeds, Mr. Alessio said: "We have in the past assumed that all pellets over one half inch in diameter should be produced at under 200 r.p.m. die speeds and all pellets under one half inch could or should be produced at die speeds ranging from 250 to 400 r.p.m. More recent tests made possible by variable die speed mills indicate that many feeds can be pelleted to better advantage at slow speed, both as regards to capacity and pellet quality, even in the smaller 5/32 and 3/16 in. sizes. This fact is definitely established on hard-to-run formulas containing sugar, milk by-products and molasses. We, therefore, feel that the addition of die speed variation to the pellet mill is essential. Where such a procedure is efficiently and economically accomplished, it can provide a most important variable to the pellet mill."

HAY PACKAGING METHODS—Confident that the farm machinery industry will overcome current problems, Dr. John B. Dobie, department of agricultural engineering, University of California, believes that a satisfactory field wafering machine will be available in 2-5 years.

Noting that field wafering is still in the experimental stage, with several companies currently testing field-going models, Dr. Dobie said field wafering is preferred over stationary operation because the machine takes the hay directly from the windrow. This advantage eliminates baling or chopping costs and places wafering in competition with baling and chopping.

"It is expected," he said, "that field wafering will eventually cost less than stationary wafering, but the product may be less uniform and of poorer quality." He added, "Additives present no problem in a stationary plant. In the field, however, adding anything but minor ingredients presents a considerable problem."

Interest in wafering hay is high in some areas, he said, because it promises to retain some of the advantages of pellets and reduce processing costs. And wafering would retain the coarse roughage preferred by some for ruminants. Wafering, he said, is an intermediate step between baling and pelleting.

Dr. Dobie said field pelleting has been unsuccessful to date primarily because of grinding and other associated factors. But a stationary wafering machine is now available. From chopped or coarsely ground hay, this machine produces a wafer of 4-in. diameter and about 1 in. thick. Dr. Dobie reported that the cost of producing wafers with this stationary machine is nearly comparable to the cost of pelleting, partly because the hay must be chopped or baled before being wafered. He said these wafers are readily consumed by cattle, but customer acceptance has not yet been adequately demonstrated. Dr. Dobie believes that a major outlet for this product (bulk density 25-30 lb. per cubic foot) may be for overseas shipment of coarsely ground roughage.

Dr. Dobie explained that hay wafers have less desirable handling characteristics than pellets, mainly because of their size, shape and density. Unlike free-flowing pellets, wafers must be handled like corn.

Dr. Dobie described pelleted hay

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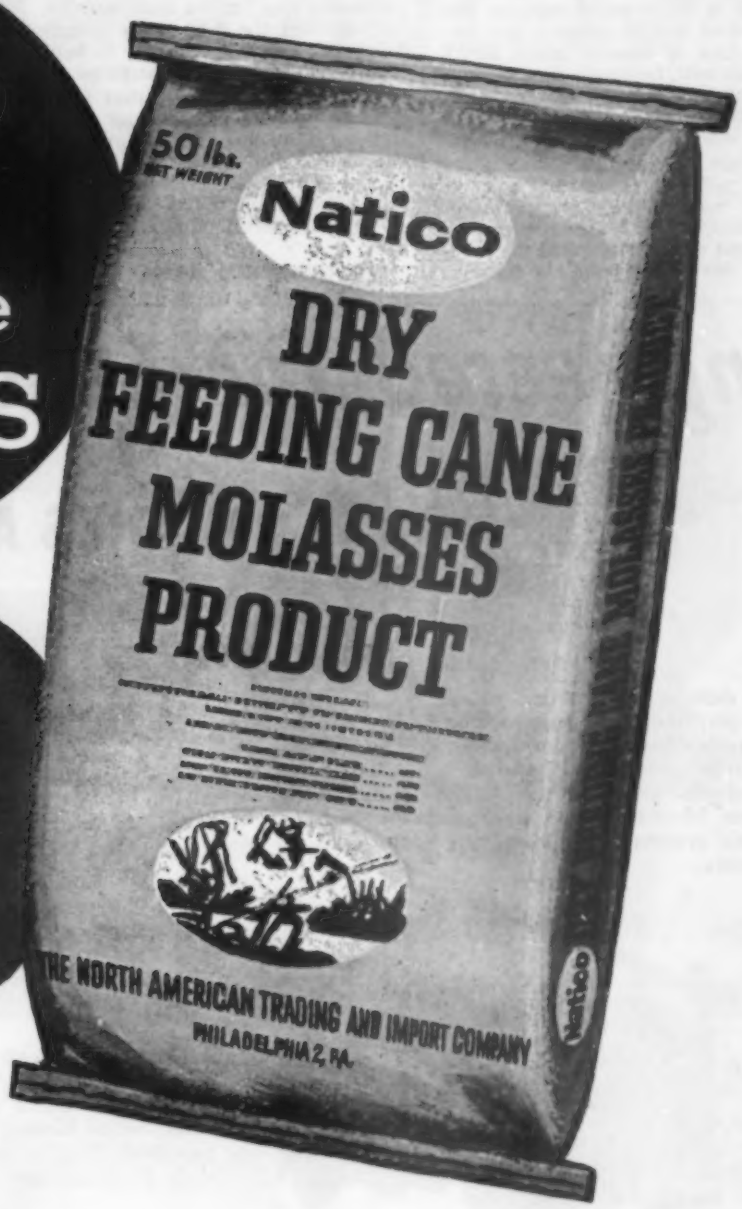

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as very desirable from a standpoint of handling, storage and feeding. "Pelleting cost is the principal objection," he observed.

Investment in a pelleting plant, including all necessary equipment and buildings for protecting hay and machinery, will run around $50,000@ $150,000, he said.

Connected electrical load will exceed 300 h.p. for a plant with one 100 h.p. pellet mill with a maximum hay pelleting capacity of 5 tons an hour, Dr. Dobie noted. Such a plant, he said, must be kept reasonably busy if it is to pellet hay for $10 ton. Actual cost of grinding and pelleting hay is usually about $6@7 ton. This cost, he noted, must be added to that of baling and roadsiding, since the usual pelleting operation starts with baled hay.

"Except for the high cost of processing, pelleting is an ideal solution to the materials handling problem with hay," Dr. Dobie commented. "The cost of processing and the problem of fine grinding the hay have diverted interest to the production of a coarse hay pellet, commonly called a wafer."

Although researchers and manufacturers are working hard at developing the ultimate in mechanical pelleting and wafering, Dr. Dobie pointed out that chopping and baling still are the two methods commonly used in "packaging" hay to improve its handling and storage characteristics.

Chopped hay, like long hay, is difficult to transport, he said.

Baling, today's standard method of packaging hay, has its disadvantages in that from the field to the animal being fed, the bale normally is handled 8-9 times with 4-5 machines.

Dr. Dobie pointed out that work is under way to improve the development of high-density balers, with the idea that a smaller bale of high density would reduce storage space requirements and would fulfill transportation needs for a maximum payload.

MODERN FEED MANUFACTURING—The need to satisfy the requirements of the specialized feeder has been the primary factor leading to a great variety of small to medium sized mills being built today, said Harris Clark, feed mill coordinator, J. B. Ehrsam & Sons, Enterprise, Kansas.

His conception of a modern feed manufacturing plant takes into consideration five main activities:

(1) Receipt and primary storage of raw materials.

(2) Raw material processing, such as cleaning, grinding and crimping of grains.

(3) Premixing and batching.

(4) Pelleting, liquid application and further processing.

(5) Finish feed packaging, storage and distribution.

Commenting on these operation phases, Mr. Clark said one of the most important features of the receiving system is the "take away" equipment. The receiving hopper and conveying equipment should be large enough to utilize manpower economically.

He advised that feed manufacturers evaluate the new self-cleaning type of conveyors for moving materials into storage. Many mills have required two receiving systems, he noted, one for grain and another for soft feed ingredients, to prevent the intermingling of whole grains with other ingredients. But, in many cases mills can use but one receiving system for all inbound materials.

Mr. Clark said there should be ample capacity on each processing unit to meet the needs of the milling system or other sales requirements without extra operating time. And these capacities should be in balance so that each operation is capable of keeping up with all others.

Under normal conditions, he said, all of the processed ingredients should be provided in the same or fewer number of hours that the mixing system is operated.

"One of the more recent plant installations in the Midwest utilizes a completely automated batching system including microingredients used in the premix," Mr. Clark said in illustrating a modern feed industry development.

He said the same type of automation planning that goes into the design and construction of a new mill can be incorporated in remodeling or upgrading existing processing facilities. Semi-automatic control can speed up batching cycles. In one case cited by Mr. Clark, tonnage was increased 20% with semi-automatic control.

Another method of increasing batching capacity is using larger batches. He noted that 5-6 ton capacity horizontal batch mixers are being given serious consideration by several of the larger feed producers.

Of great help in designing a modern plant is a process flow diagram. "The latest feed plants carry this concept completely through even to the extent that a mural of the flow is placed on the wall in the employees' lunch area," Mr. Clark said.

"Flexible initial design with partial automation permits the possibility of full automation in the future. This can be done economically only if the plant is designed with orderly future expansion needs in mind."

DEVELOPMENT OF LINEAR PROGRAMMING FOR FEED FORMULATION—The technique of linear programming, said Dr. Gordon A. King, professor of agricultural economics, University of California, has usefulness not only in determining a least-cost ration, with given feed prices, but can be manipulated to indicate profitable ingredient substitution under changing ingredient prices. Also, he said, the nature of the specifications requires that poultry nutritionists state requirements in terms that can be analyzed objectively.

Along with explaining linear programming for feed formulation in detail, Dr. King noted that usually the solution to a complex programming

(Turn to CONFERENCE, page 124)

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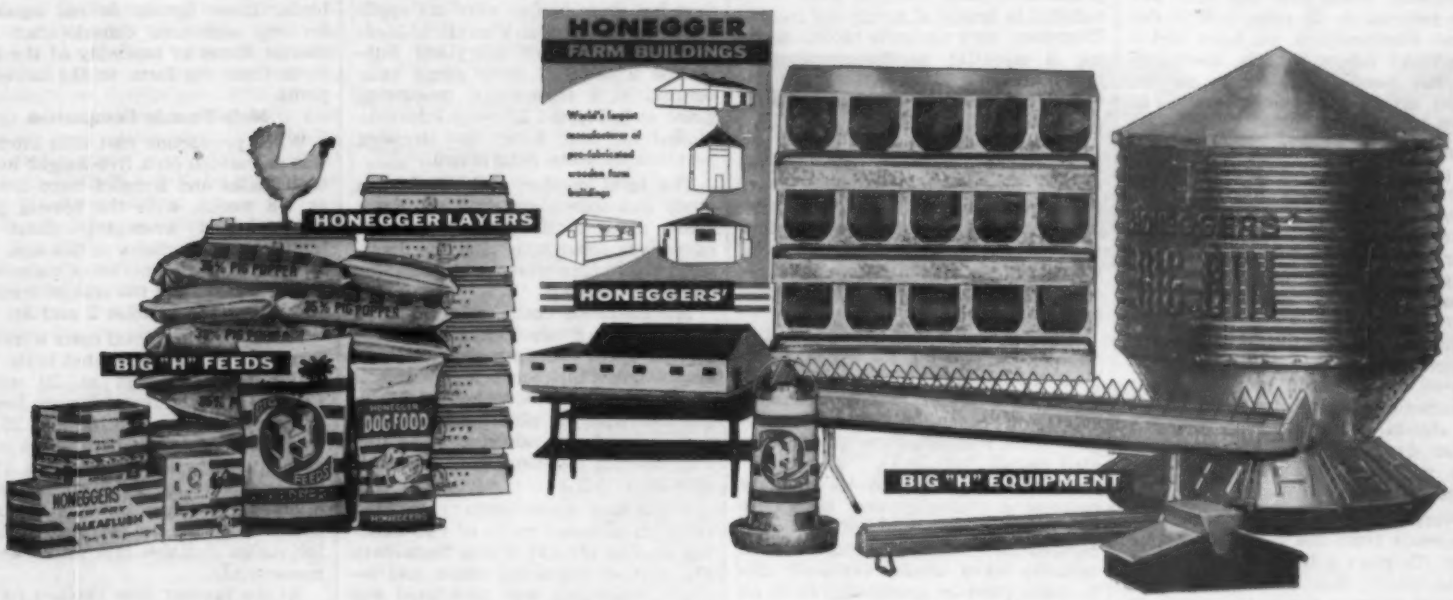

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Cost of Producing Broiler Meat

"With the calculations of cost of production and processing on an eviscerated basis, the industry would be in a better position to know how some pricing systems would work, and how to produce chicken meat most economically for the consuming public."*

By Dr. N. V. Helbacka and Dr. G. F. Combs
University of Maryland

Dr. N. V. Helbacka

Dr. G. F. Combs

AUTHORS—Dr. Helbacka is assistant professor of poultry marketing at the University of Maryland, and Dr. Combs is professor of poultry nutrition.

Some time ago the greatest portion of man's time was spent in getting food, but today the time spent for this purpose is just a small fraction of his total time.

Fechtel (1) for example, has shown that in 1925 the wages from 40 min. of labor were required to buy a pound of chicken, while now the time has been reduced to 13 min., a 65% decrease. Furthermore, we have had a division of labor; that is, food getting has been designated to certain people or groups who specialize in this field.

Since this division has taken place, the people who are engaged in producing and supplying food are continuously looking for methods to improve their efficiency as far as time, labor and costs are involved. Paralleling this improved efficiency is continuous search for quality improvement.

Chicken meat at the present time is one of the highest quality and lower cost meats. Mass production has contributed to improved efficiency and standardized conditions. The consumer desires meat at a low price, thus requiring over-all economy in production.

Overproduction in reality is not dangerous from the consumer standpoint. To have a 10% overproduction is far better than having a 10% underproduction as far as the people as a whole are concerned. In this way we have a slight reserve in case of serious disaster or other emergencies which may occur.

However, many times competition produces serious consequences upon those people engaged in production, many times leading them to the brink of bankruptcy. Because of up-to-date technological know-how and good business sense, some remain and expand their business, while those who lag behind because of the lack of knowledge fall by the wayside.

Narrow Margins

In the production of poultry meat, we no longer are dealing with margins of cents per pound. Because of mass production these margins have been reduced to tenths of a cent per pound. Therefore, very accurate record keeping is essential, so that production and marketing agencies have readily at their finger tips the real costs of production.

In view of these facts, since no recent studies have been made of the cost of production of chicken meat, this information was desired. Furthermore, it was desired to know what the differences in production costs were between male and female broilers raised separately and both sexes raised together.

Another factor that enters in is the age or the weight at which these birds would most economically produce meat. Rather than to calculate costs on a production basis only, costs also were calculated on an eviscerated basis.

It would be a fallacy to calculate costs on a production-cost basis only because the final cost of the eviscerated bird is the true cost for the industry as a whole. Certainly differences exist in production costs on a live-weight basis and in the eviscerated product, but adjustments between these points must be made.

For greatest returns every successful business must strive to produce a high quality product at the lowest cost consistent with consumer demands. Broiler meat is no exception. With the calculations of cost of production and processing on an eviscerated basis, the industry would be in a better position to know how some pricing systems would work, and how to produce chicken meat most economically for the consuming public.

The live weights and feed conversions were based on Substation Trials S-24, S-25, and S-26 at the University of Maryland (2) (3) (4). The extreme weights and feed conversions were assumed from an extrapolation of a curve from these data. McNally & Spicknall (5) and Jaap et al. (6) presented data on dressing percentages but these figures were not applicable to this study. Therefore, birds from University of Maryland Substation Trial S-27 were whole eviscerated at a commercial processing plant at 8, 10, and 12 week intervals, chilled for four hours and dressing percentages were determined.

The total number of birds in this study was approximately 5,000. From these data, a dressing percentage curve was constructed and the dressing percentages were read from the curve.

Miscellaneous costs were based on a Delmarva Study (7). From these figures again the extremes were extrapolated. Chick cost was assumed at 10¢ per chick debeaked and vaccinated, with no additional cost for sexing. Feed was valued at $90 a ton, and interest on investment was calculated at 6%.

Processing costs were calculated from an adjusted curve of two existing studies (8) (9). From these data the cost of producing males and females separately was calculated and the cost for producing mixed sexes was determined from the proportion that each sex would contribute to the total weight (Table 1).

It should be noted that all of the calculations were based on the assumption that at the end of any of the periods (6-12 weeks) the same poundage of meat would be sold. This would mean that the producer would determine in advance at what age the birds would be sold so that proper floor space would be allotted for the birds that would be kept to heavier weights. By so doing, disease risk and over-crowding would not become a problem.

For the birds marketed at an earlier age more birds per house would be started but marketed at a lighter weight, and vice versa for the older birds. These figures do not account for any additional consideration for disease losses or assembly of the live birds from the farm to the dressing plant.

Male-Female Comparison

When production cost with interest was calculated on a live-weight basis, both males and females were lowest at 7-8 weeks, with the female production cost averaging about 1¢ higher than the males at this age.

The cost of production of males was about 15¢ lb., and the cost of females was about 16¢ (Tables 2 and 3).

However, when total costs were determined on an eviscerated basis, the males were lowest at 10 weeks (22.65¢) and the females were lowest at 9 or 10 weeks (25.16¢ and 25.18¢ respectively). When both sexes were calculated, the lowest cost was at 10 weeks (23.77¢ lb., Table 4). Tables 5, 6, and 7 are a breakdown of the component costs on an eviscerated basis for males, females and mixed sexes, respectively.

At the present time broilers on the Delmarva Peninsula are marketed at slightly over nine weeks of age. From this data it would appear that the birds may be going to market about a week too early to be most economical to the industry as a whole.

Granted, the production costs on a live-weight basis are lowest around eight weeks. But for the industry to survive the whole economy of production should be considered. It is believed that by studying the production cost figures and the over-all production costs, a reasonable agreement

*Miscellaneous Publication No. 368. Contribution No. 3078 of the Maryland Agricultural Experiment Station (Department of Poultry Husbandry).

TABLE 1. Proportion of Meat Produced by Each Sex at Weekly Intervals

	Age, weeks						
	6	7	8	9	10	11	12
Per cent males	54.1	54.5	54.8	55.3	55.8	55.8	55.5
Per cent females	45.9	45.5	45.2	44.7	44.2	44.2	44.5
Total per cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 2. Cost Per Pound of Broiler Meat, Males

	Age, weeks						
	6	7	8	9	10	11	12
Weight, lb., live	2.11	2.65	3.21	3.81	4.42	5.03	5.64
Feed conv., feed/lb., wt.	1.80	1.90	2.00	2.11	2.22	2.34	2.48
Dressing percentage*	72.15	72.45	73.05	74.00	75.60	76.30	76.50
Eviscerated wt., lb.	1.52	1.92	2.34	2.82	3.34	3.84	4.31
Miscellaneous costs, cents/lb.							
Fuel	.55	.60	.63	.63	.63	.63	.63
Litter	.17	.18	.19	.20	.21	.22	.23
Vaccination, medication and sanitation	.28	.30	.32	.34	.36	.38	.40
Exchange fee	.04	.04	.03	.03	.03	.02	.02
Insurance	.03	.03	.03	.03	.04	.04	.04
Labor	1.03	1.18	1.33	1.48	1.64	1.79	1.94
Other	.22	.25	.28	.31	.35	.39	.43
Total miscellaneous	2.32	2.59	2.78	3.02	3.26	3.47	3.69
Chick cost @ 10c each debeaked	4.74	3.77	3.12	2.62	2.26	1.99	1.77
Total feed cost @ 4.5c lb.	8.10	8.55	9.00	9.50	9.99	10.53	11.16
Interest @ 6%	.10	.12	.14	.16	.18	.20	.23
Total production costs on live weight basis	15.26	15.03	15.04	15.30	15.69	16.19	16.85
Total production cost on eviscerated basis	21.15	20.75	20.59	20.68	20.75	21.22	22.03
Processing cost per lb.	5.30	3.36	2.78	2.32	1.90	1.64	1.45
Total cost of broiler meat per lb.	26.45	24.11	23.37	23.00	22.65	22.86	23.48

*Based on whole eviscerated carcass, chilled four hours in slush ice.

TABLE 3. Cost of Producing Broiler Meat, Females

	Age, weeks						
	6	7	8	9	10	11	12
Weight, lb., live	1.79	2.22	2.66	3.13	3.60	4.07	4.54
Feed conv., feed/lb., wt.	1.85	1.96	2.07	2.20	2.33	2.47	2.62
Dressing percentage*	72.00	72.20	72.65	72.95	73.60	74.60	76.00
Eviscerated wt., lb.	1.29	1.60	1.93	2.28	2.65	3.04	3.45
Miscellaneous costs, cents/lb.							
Fuel	.55	.60	.63	.63	.63	.63	.63
Litter	.17	.18	.19	.20	.21	.22	.23
Vaccination, medication and sanitation	.28	.30	.32	.34	.36	.38	.40
Exchange fee	.04	.04	.03	.03	.03	.02	.02
Insurance	.03	.03	.03	.03	.04	.04	.04
Labor	1.03	1.18	1.33	1.48	1.64	1.79	1.94
Other	.22	.25	.28	.31	.35	.39	.43
Total miscellaneous	2.32	2.59	2.78	3.02	3.26	3.47	3.69
Chick cost @ 10c each debeaked	5.59	4.50	3.76	3.19	2.78	2.46	2.20
Total feed cost @ 4.5c lb.	8.33	8.82	9.32	9.90	10.49	11.12	11.79
Interest @ 6%	.11	.13	.15	.17	.19	.22	.25
Total production costs on live weight basis	16.35	16.04	16.01	16.28	16.72	17.27	17.93
Total production cost on eviscerated basis	22.71	22.22	22.04	22.32	22.72	23.15	23.59
Processing cost per lb.	5.82	4.20	3.37	2.84	2.46	2.14	1.83
Total cost of broiler meat per lb.	28.53	26.42	25.41	25.16	25.18	25.29	25.42

*Based on whole eviscerated carcass, chilled four hours in slush ice.

TABLE 4. Cost of Producing Mixed Sexes, Equal Number of Each Sex

Proportional Cost of Meat Produced by Each Sex

	Age, weeks						
	6	7	8	9	10	11	12
Males	14.31	13.14	12.81	12.72	12.64	12.76	13.03
Females	13.10	12.02	11.49	11.25	11.13	11.18	11.31
Total cost, cents/lb.	27.41	25.16	24.30	23.97	23.77	23.94	24.34

TABLE 5. Breakdown of Costs on Eviscerated Basis, Males

	Age, weeks						
	6	7	8	9	10	11	12
Miscellaneous cost	3.22	3.57	3.81	4.08	4.31	4.55	4.82
Chick cost	6.57	5.20	4.27	3.54	2.99	2.61	2.31
Feed cost	11.22	11.80	12.32	12.84	13.21	13.80	14.59
Interest	.15	.17	.19	.22	.24	.26	.30
Processing cost	5.30	3.36	2.78	2.32	1.90	1.64	1.45
Total costs, cents/lb.	26.46	24.10	23.37	23.00	22.65	22.86	23.47

TABLE 6. Breakdown of Costs on Eviscerated Basis, Females

	Age, weeks						
	6	7	8	9	10	11	12
Miscellaneous cost	3.22	3.59	3.83	4.14	4.43	4.65	4.86
Chick cost	7.76	6.23	5.18	4.37	3.78	3.30	2.89
Feed cost	11.57	12.22	12.83	13.57	14.25	14.91	15.51
Interest	.15	.18	.21	.24	.26	.29	.33
Processing cost	5.82	4.20	3.37	2.84	2.46	2.14	1.83
Total costs, cents/lb.	28.52	26.42	25.42	25.16	25.18	25.29	26.42

can be made for a proper selling price for live birds. In a completely integrated operation the total eviscerated cost would be the most important.

Another aspect that should be considered is the raising of sexes separately. Possibly females could be marketed earlier when they have reached their maximum efficiency, holding over the males to take advantage of their more rapid growth and better feed conversion. If specialty markets were available for light weight birds it would be possible to market these earlier.

It is believed the methodology used in this study is sound. Under different conditions the component costs may vary. In this case, all that needs to be done is a simple substitution of figures for the cost in question.

Summary

An attempt was made to consider the cost of producing broiler meat from the standpoint of the industry as a whole. Cost of broiler meat was determined on an eviscerated basis rather than on the basis of production costs alone.

Using some assumed costs and performances at various ages, it was determined that the total cost of producing males reared separately or mixed sexes was lowest at 10 weeks, while on the basis of production costs only, the lowest cost was at 7-8 weeks. The total cost of production for females was at 9-10 weeks, while production costs alone were lowest at 7-8 weeks.

The cost of raising sexes separately does not appear feasible unless low cost autosexed birds become available. The costs used in this study may not apply to all operations in which case substitution of more reliable figures in different areas or other enterprises would permit better calculations.

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J. K. Omvig Named Swift Mill Manager

DES MOINES, IOWA—J. K. Omvig has been appointed manager of Swift & Co.'s feed mill here, according to a recent announcement. Mr. Omvig graduated from Iowa State University with a degree in agronomy.

J. K. Omvig

He started his career with Swift in 1947 as a feed and plant food salesman at Sioux City, Iowa.

Most recently, he has been assistant manager of the feed mill at Forest Park, Ill.

Service Man

WALTHAM, MASS.—Erik S. Florander was recently appointed a Wirthmore Feeds, Inc., dairy service representative in the Chester, Pa., area.

Mr. Florander owned and operated Dancow Herd Management Service, Chester, prior to accepting his new position with Wirthmore. He received his early education in Denmark and later graduated from Stockbridge School of Agriculture, University of Massachusetts.

TABLE 7. Breakdown of Costs on Eviscerated Basis, Mixed Sexes

	Age, weeks						
	6	7	8	9	10	11	12
Miscellaneous cost—							
Males	1.74	1.94	2.09	2.26	2.40	2.54	2.68
Females	1.48	1.63	1.73	1.85	1.96	2.05	2.16
Total	3.22	3.57	3.82	4.11	4.36	4.59	4.84
Chick cost—							
Males	3.55	2.83	2.34	1.96	1.67	1.46	1.28
Females	3.56	2.87	2.34	1.95	1.67	1.46	1.29
Total	7.11	5.70	4.68	3.91	3.34	2.92	2.57
Feed cost—							
Males	6.07	6.43	6.75	7.10	7.37	7.70	8.10
Females	5.31	5.56	5.81	6.07	6.30	6.59	6.90
Total	11.38	11.99	12.56	13.17	13.67	14.29	15.00
Interest—							
Males	.08	.09	.10	.12	.13	.15	.17
Females	.07	.08	.10	.11	.12	.13	.15
Total	.15	.17	.20	.23	.25	.28	.32
Processing cost—							
Males	2.87	1.83	1.52	1.28	1.06	.92	.80
Females	2.67	1.91	1.52	1.27	1.09	.94	.81
Total	5.54	3.74	3.04	2.55	2.15	1.86	1.61
Total costs, cents/lb.	27.40	25.17	24.30	23.97	23.77	23.94	24.34

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Ohio Researchers Say Pelleted Dairy Forages Need Coarse Grinding

WOOSTER, OHIO — "Forages to be pelleted for dairy cattle feeding should be ground coarsely," according to Dr. H. R. Conrad and Dr. J. W. Hibbs, Ohio Agricultural Experiment Station dairy researchers.

The researchers said in a recent issue of Ohio Farm and Home Research that, "Most of the adverse nutritional effects of fine grinding result from the rapid rate of passage of the fine particles through the rumen which limits rumen bacterial digestion."

The following is the report by Dr. Conrad and Dr. Hibbs:

If the roughage is ground finely enough, the acetic acid production in the rumen is reduced. This causes a reduction in the butterfat per cent and also lowered cellulose digestion. These effects are important enough to make finely ground hay pellets, when fed as the principal roughage, unsatisfactory for dairy cows.

In an effort to obtain information on the feeding value of pellets made from more coarsely ground hay, milking cows were fed pelleted, field-chopped, third and fourth cutting dehydrated alfalfa which had been passed through a hammermill with the screen removed. The pellets were pressed through a ¾ in. cylindrical die and were about 1 in. in length.

Comparisons

Comparisons were made with freshly cut, third cutting, field-chopped alfalfa and with a conventional corn silage and alfalfa hay ration. These experiments showed that the pelleted alfalfa made from field-chopped, dehydrated forage was highly acceptable to the cows—provided 3-5 lb. of hay were included in the daily ration. A summary of the data for the various rations is shown in the table.

Milk production was equally good as that produced on the control ration and butterfat percentages were not significantly changed. The conclusion is that optimum milk yields may be obtained with the coarsely chopped pelleted alfalfa.

Digestibility

But from the nutritional standpoint digestibility was reduced. Cellulose digestibility dropped to 41.3% compared to 67.5% for the control ration. However, daily feed intake rose and compensated for the reduced digestibility. As a result the average daily digested dry matter intake was essentially the same with the pelleted forage and control rations.

The reduction in cellulose digestibility, even though it did not lower butterfat per cent significantly, is evidence that the forage in the ¾ in. pellets was too fine for complete cellulose digestion before passing from the rumen. Furthermore, when the cows were first shifted to pellets as the sole roughage, they commenced eating shavings being used for bedding and varied widely in day-to-day feed intake so that it was necessary to feed 3-5 lb. of long hay daily. It is interesting that as little as 3 lb. of hay had the desired effect.

Summary of Data for Dairy Rations

	——Experiment 1——	
	Alfalfa pellets + 3-5 lb. hay	Field chopped alfalfa
Number of cows	8	8
Milk production (lb./day)	31.7	31.4
Butterfat (%)	4.62	4.81
Feed intake (lb./day)		
Holsteins	39.5	35.9
Jerseys	29.8	25.6
Dry matter digested (%)	60.6	71.2
Cellulose digested (%)	41.3	67.5

	——Experiment 2——	
	Alfalfa pellets + 5 lb. hay	Alfalfa hay + corn silage
Number of cows	4	4
Milk production (lb./day)	57.1	56.6
Butterfat (%)	3.88	4.03

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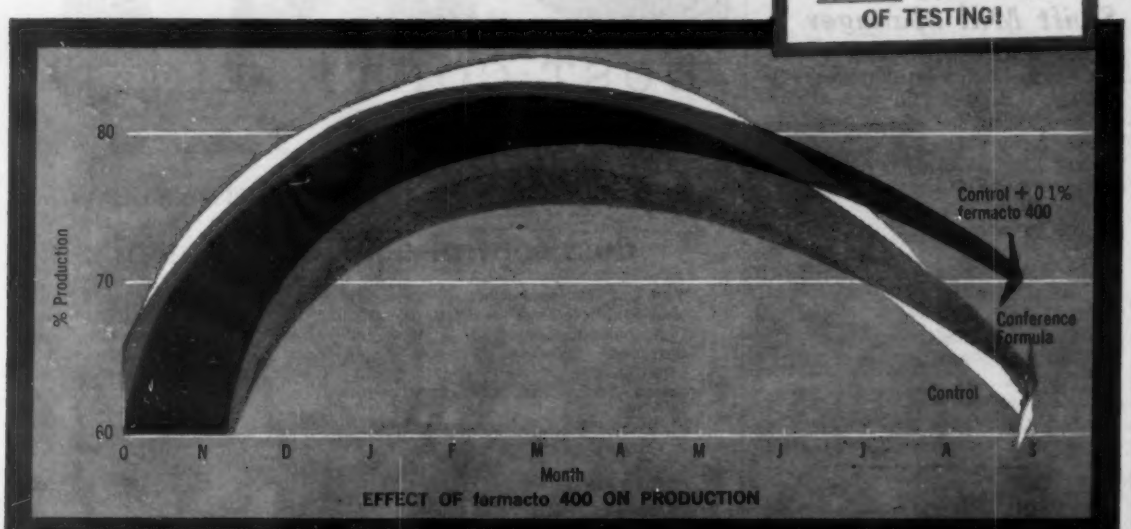
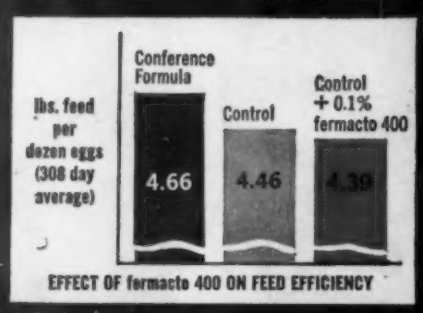


EFFECT OF formacto 400 ON PRODUCTION



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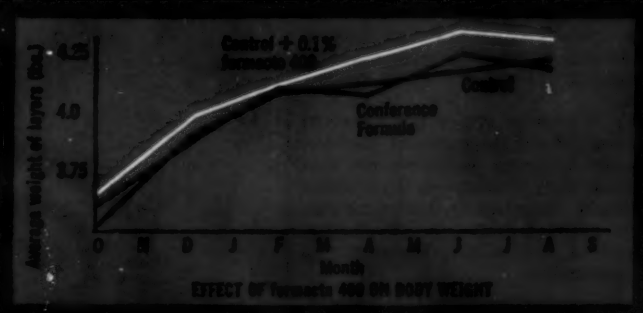

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Integration No Threat To Pricing System, Says Food Economist

SAN FRANCISCO—Vertical integration poses no threat to the pricing system and to competitive pricing, according to Dr. Roger W. Gray, associate economist in the Food Research Institute, Stanford University, Palo Alto. Dr. Gray, researcher in food economics, told a businessmen's luncheon meeting in San Francisco recently that the trend toward vertical integration in agriculture and elsewhere may actually spur the development of open markets. "We sometimes fail to recognize new markets when they are developing," he said, "and vertical integration can mean market improvement.

"The system is more likely to strengthen rather than weaken the economy, and does not eliminate price competition.

"To some extent," Dr. Gray said, "vertical integration is an alternative system to market coordination, and may be of profound economic significance. To some extent, inadequate coordination between pricing systems may lead to vertical integration, and a major result of vertical integration is the displacement of market coordination.

"But vertical integration need not preclude market coordination," Dr. Gray added. He pointed out that there are many instances when different divisions of integrated firms compete with one another, or where a retailer may not buy the products made by his own company as he finds it to his advantage to go into the open market.

The thesis that large integrated companies would use the market place less is not valid, Dr. Gray said, as larger companies are more price conscious rather than less.

Vertical integration has progressed much farther in non-agricultural fields than in agricultural, he said. He said there were three forms of integration: Forward from the feed dealer; backward from the processor or canner of broilers, and backward from the food retailer to the agricultural producer. "The last form of vertical integration is the most important of the three," he said.

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MARCUS, IOWA — The Farmers Co-op Feed Mill here was opened recently. Don Anderson is manager of the mill.

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It is just as important that you as a feed manufacturer, jobber or dealer, know about new methods that will increase the profits from your feed.

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GRAN-I-GRIT Research Proved that larger sizes of grit, instead of passing through the digestive tract like small grit, stays and works in the gizzard.

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By informing your customers of GRAN-I-GRIT'S New Grit Feeding Program you can show them HOW TO MAKE MORE MONEY FROM YOUR FEED, which in turn will stimulate your sales and profits.

Made $31.00 MORE PROFIT Per 1000 Broilers

Mr. Gurney C. Hodges, top broiler grower of Low Gap, North Carolina, states, "I tested GRAN-I-GRIT'S New Grit Feeding Program on 4,000 broilers, feeding the larger sizes of GRAN-I-GRIT as recommended. I made $127.50 more with these 4,000 broilers than I did with 4,000 broilers, raised at the same time, to which I did not feed the larger sizes of grit. I feel sure that the larger sizes of grit were responsible for this outstanding result."

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CYANAMID FIRST WITH NEW WAY TO REDUCE VIBRIOSIS LOSSES

Feed manufacturers can now make disease claim for reducing incidence of vibrionic abortion in sheep —with feeds containing Aureomycin

Vibriosis costs *money!* In certain areas, outbreaks of this most-feared of sheep diseases have resulted in losses as high as 70% of the lamb crop.

Now...for the first time...you can offer a really effective way to reduce vibriosis losses. Offer feeds containing AUREOMYCIN® and carry a disease claim for reducing the incidence of vibrionic abortion on your feed tag. Government approval of such a disease claim, with AUREOMYCIN fed at the level of 80 milligrams per ewe per day, has recently been given.

Experiments show Aureomycin cuts losses

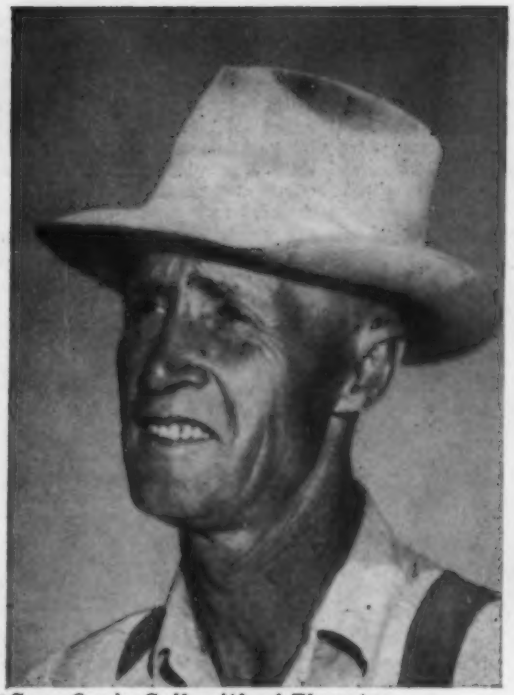
The use of AUREOMYCIN as a preventive for vibrionic abortion in sheep has been investigated for a period of two years by the Idaho Agricultural Experiment Station. Two experiments were conducted in 1957 and 1958. Each experiment started seven weeks prior to lambing and two lots of ewes were used in each. One group received no AUREOMYCIN. The other group received AUREOMYCIN at the rate of 80 mg. per ewe per day. Twelve days after the start of the experiments, all ewes were infected experimentally with vibriosis. Results are shown in the following tables:

Experiment I

	Lot No. 1 Without AUREOMYCIN	Lot No. 2 With AUREOMYCIN
Number pregnant ewes	18	17
Normal lambings	7	14
Abortions	11 (61%)	3 (18%)

Experiment II

	Lot No. 1 Without AUREOMYCIN	Lot No. 2 With AUREOMYCIN
Number pregnant ewes	21	20
Normal lambings	6	17
Abortions	15 (71%)	3 (18%)

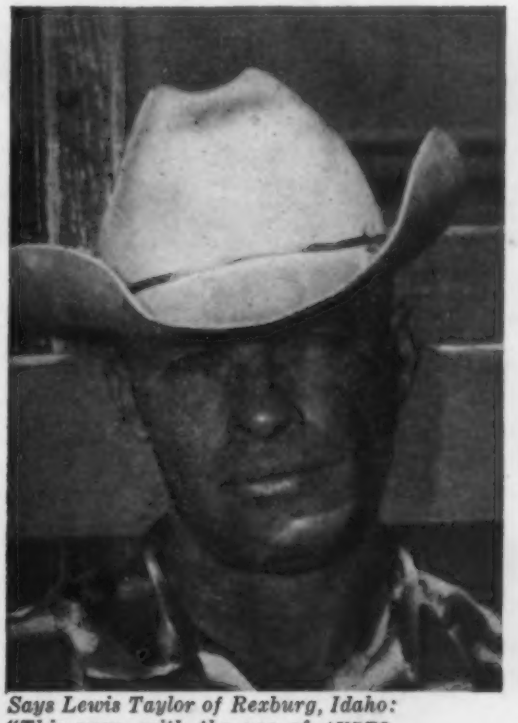


Says Orvin Galbraith of Thornton, Idaho: "I used AUREOMYCIN to help control vibriosis. Because of AUREOMYCIN, I turned out 135 lambs for every 100 ewes. In 1951 when we had vibriosis and didn't use AUREOMYCIN, we got only 50 lambs per 100 ewes."

Says Bill Siddoway of St. Anthony, Idaho: "With AUREOMYCIN, our ewe losses have been reduced 50% — abortions cut to a minimum. Lambs are healthier. Reduction in ewe losses alone more than paid for the cost of AUREOMYCIN."

In reporting these results to the Idaho Wool Growers Association, the investigators said: "In evaluating these results, it should be remembered that every ewe was inoculated with a massive dose of the infectious agent. This severe exposure would rarely occur under field conditions. This suggests that antibiotic feeding will be even more effective in actual field use than these results indicate."

If you are a feed manufacturer serving an area where vibriosis is a costly problem, offer your customers this new way to cut losses. Make a feed that will furnish the recommended level of AUREOMYCIN. Write for more detailed information on the experiments conducted with AUREOMYCIN in the control of vibriosis. American Cyanamid Company, Agricultural Division, New York 20, N. Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*



Says Lewis Taylor of Rexburg, Idaho: "This year, with the use of AUREOMYCIN, we reduced our ewe death losses 70%. We had bigger and stronger lambs with minimum losses from vibriosis"

Says Dick Egbert of Tetonia, Idaho: "AUREOMYCIN brought our infection troubles almost to a standstill. It eliminated three-fourths of all death losses in ewes and lambs."

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

The Effect of High Levels of an Antibiotic on Egg Weight and Shell Quality During Hot Weather

● B. W. Heywang and M. G. Vavich, U.S. Department of Agriculture, Glendale, Ariz., Poultry Science, Vol. 38, No. 5, September, 1959, pp. 999-1003.

ABSTRACT AND COMMENT:

Most of the work with feeding antibiotics during hot weather and other periods of stress has been confined largely to the effects on egg production, weight gains, feed efficiency and general health of birds and not to an evaluation of egg quality. So far, egg quality's response to antibiotics seems to be highly variable and the results are quite confusing without too much general pattern! Let's look briefly at most of the experiments on this rather important aspect:

Penicillin's influence on egg quality was evaluated by Maryland researchers (1952, 1954) at levels of approximately 13.6 and 27.2 gm. of procaine penicillin per ton of feed. Improved shell quality as measured by specific gravity by the end of the third week of feeding during summer months was noticed. However, other workers at different stations also using procaine penicillin were unable to detect any real improvement in shell quality or egg weight using levels of the antibiotic varying from 4 to 100 gm. per ton of feed (Heywang and Kemmerer, 1955; Petersen et al., 1958).

Aureomycin at levels of approximately 4.5, 9.1, 18.1 and 36.3 gm. per ton of feed did not improve shell thickness as determined by egg weight or by micrometer measurements (Chin and Brant, 1953). Further work with this antibiotic is now reported from three experiments in the current issue of Poultry Science from the Southwest Poultry Experiment Station and demonstrates further lack of response as affecting shell quality with this antibiotic at levels from 0 to 200 gm. per ton of feed. No appreciable changes were observed in average egg weight or shell quality and there was no indication that the effect of the antibiotic was any greater after being fed for four weeks.

Terramycin Additions

It is also rather interesting to note the somewhat conflicting results of Terramycin additions to laying rations on egg quality and shell quality.

Three experiments at Mississippi (1959) evaluated the additions of antibiotics to laying rations. As part of the experiment, Terramycin was added at either 25 or 50 gm. per ton continuously, or else 200 gm. per ton of feed fed four days per month to caged laying hens.

It was noted that the antibiotic addition did not increase shell thickness as measured by the specific gravity of the eggs. This group did not investigate the actual breaking strength of the shells, however, but they mentioned the possibility that shell strength could increase without an actual increase in shell thickness. They plan future research on this interesting point.

Ohio workers, on the other hand, fed 100 gm. per ton of Terramycin as part of a four-year investigation (1959) on the feeding of antibiotics on a continuous basis to laying hens. They noted that this level of Terramycin improved egg shell breaking strength—but only during those periods when shell strength was below average.

Dr. Paul Sanford of Kansas State (1959) has demonstrated that at least in the case of floor layers, 10 gm. per ton of a single source, or a combination of two antibiotics, resulted in a slight but non-significant increase in egg weight, shell percentage, hatchability, feed conversion and maintenance of body weight, with no noticeable improvement in interior egg quality or appearance of blood or meat spots. The materials tested included the antibiotics Aureomycin, zinc bacitracin and procaine penicillin, as well as the nutrofuran chemical, furazolidone (nf-180).

However, it is also interesting to note that earlier (1958) the following was reported by Kansas: "Supplementing the laying ration with a combination of zinc bacitracin and Aureomycin has resulted in a better quality egg shell than supplementing the ration with any single source of antibiotics."

Not Surprising

Feed manufacturers should not be very surprised to see differing results on egg quality factors when antibiotics are fed to layers. This is simply because stress conditions and "subclinical" disease conditions in flocks are largely a matter of individual environmental situations. If a good response is secured by the addition of antibiotics with respect to egg production, feed efficiency and related

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SELLIN' SAM — By Jim Zilverberg

"I still think you could find some other way of making local deliveries."

factors, it is also very reasonable to assume that egg quality and shell strength will be improved as well. On the other hand, if no or only a small response is secured in production, etc., from the additions of the antibiotics, it is highly likely that little effect will also be seen on egg quality factors.

Feed people should also realize that individual environmental situations will largely dictate the responses from intermittent high-level vs. lower level continuous feeding of antibiotics to layers. This also goes a long way to explain the confusion now existing on levels to be used and the variable field responses being seen. Undoubtedly, there are situations where the judicious use of selected antibiotics in laying hen rations will be profitable and worthwhile. Unfortunately, it is equally true that they will not pay their way in all situations and under all conditions. The cost of such additions to laying rations is a detriment to their indiscriminate use and many feed manufacturers will prefer to attack the problem by the use of possible alternative additives or by treatment and sanitation procedures.

•

Timely and Worth Noting:

A new approach to control injurious insects by means of microbial insecticides is under development at the present time by several commercial and college laboratories. The first of these to satisfy the requirements of safety and non-toxicity required by the Federal Food & Drug Administration is Thuricide as manufactured by Bioferm Corp. The active principle of this living pest control agent is Bacillus thuringiensis Berliner, a bacteria first isolated from diseased larvae of the Mediterranean flour moth.

On Dec. 10, 1958, FDA authorized the application of this insecticide directly to food and forage crops under the conditions of a temporary exemption from a tolerance. Part of the two-year study conducted to satisfy the government and the manufacturer of the safety of this compound is described in the current issue of the Journal of Agricultural and Food Chemistry (Vol. 7, No. 10, October, 1959).

We probably can look forward to more developments in this interesting field of microbial insecticides since they are apparently extremely specific in action for certain insects, and without toxicity of any kind to plants, animals, beneficial insects or humans as demonstrated by this preliminary work.

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Feed Research Program

Beacon Milling Co. Research Staff of 28 Works with Modern Testing Facilities

One look at the extension feed testing facilities of Beacon Milling Co. at Cayuga, N.Y., tells the observer that Beacon, a division of Spencer Kellogg & Sons, Inc., considers nutrition research to be of great importance.

Beacon has made research a part of its business for more than 30 years. During that time, the company has continued to develop its experimental facilities so that today a visitor touring Beacon's poultry, dairy and livestock research farms and nutritional laboratories would find facilities which include the following:

FOR POULTRY—

- 114 battery units, each with a capacity of 10 broilers.
- 16-pen house, big enough to hold 4,000 broilers.
- Three experimental layer units, with a total capacity of 3,200 birds, and further expansion under way.
- Facilities for growing pullets.
- 12 turkey pens; total capacity of 1,200 birds.
- Four pens of ducks.

EDITOR'S NOTE: The amounts of time, effort and money devoted to agricultural research are growing rapidly. The upswing in farm research is expected to raise expenditures above $1 billion within seven years. The current rate of spending is close to $500 million a year, nearly double what it was 10 years ago, according to Dr. J. M. Snyder of the Beacon Milling Co.

Industry and the government share the bill for agricultural research about 50-50. What one company is doing—in this case Beacon Milling Co., Cayuga, N.Y., division of Spencer Kellogg & Sons, Inc.—is told in this feature story. The description of Beacon's research facilities is based on a talk given by Dr. Snyder at Vineland, Ontario, Canada, before the oil sales department personnel of Spencer Kellogg.

BROILER UNIT—This view shows interior of one of the experimental broiler units at Beacon poultry research farm, Cayuga, N.Y. The concrete-block broiler house contains 16 pens, with 250 birds in each. Joseph Presto, farm manager, holds 7-week-old Vantress Cross cockerel.

SWINE FEED TESTING—Beacon Milling Co.'s confinement rearing-multiple farrowing unit for swine on research farm near Cayuga, N.Y., is indicative of increased corn production and resultant hog interest in parts of the East. These facilities include a farrowing hut, nursery, finishing porch and sow colony.

REPLACEMENT PULLETS—Most of the replacement pullets at the poultry research farm are raised on range, although several wire rearing platforms are used also. Feeding comparisons are made between the respective rearing methods.

LAYER RESEARCH FACILITIES—Dr. J. M. Snyder (pointing), director of poultry research, Beacon Milling Co., examines new experimental laying facilities at Beacon poultry research farm with Clarence Hurlbutt (center), manager of the new unit, and Joseph Presto, manager of the farm. Dr. Snyder explains operation of new ventilation unit installed by Farm Engineering & Supply Co., Springfield, Mass.

FOR DAIRY CATTLE AND SWINE—

- 337-acre dairy and livestock research farm.
- 100 head of purebred Holsteins.
- Multi-breed dairy herd of identical twins.
- Swine facilities for 36 sows and their litters.

This is an extensive list of research facilities. But test animals and the buildings and other equipment needed for experimental work are not all there is to finding out what feeds will get the best results.

A capable staff is necessary, too. Including all echelons of research personnel, there are 28 people presently engaged in Beacon's dairy and livestock research.

This research staff includes four persons with Ph.D. degrees, three with master's degrees and one with a B.S.

A number of these people have had experience as members of college staffs. In this connection it is noted that L. S. Riford, first livestock specialist with the company, was the first college professor to go into the feed business. Before his recent retirement, Mr. Riford was in the top leadership position in Beacon.

Nearly two thirds of the people on Beacon's research staff work primarily with poultry research.

Areas of Research

In discussing just some of the areas of research, Dr. J. M. Snyder, director of Beacon's poultry research, noted that increasing emphasis has been placed on the energy requirements of poultry, dairy cattle and livestock, and considerable attention is being focused on protein or amino acid requirements of layers.

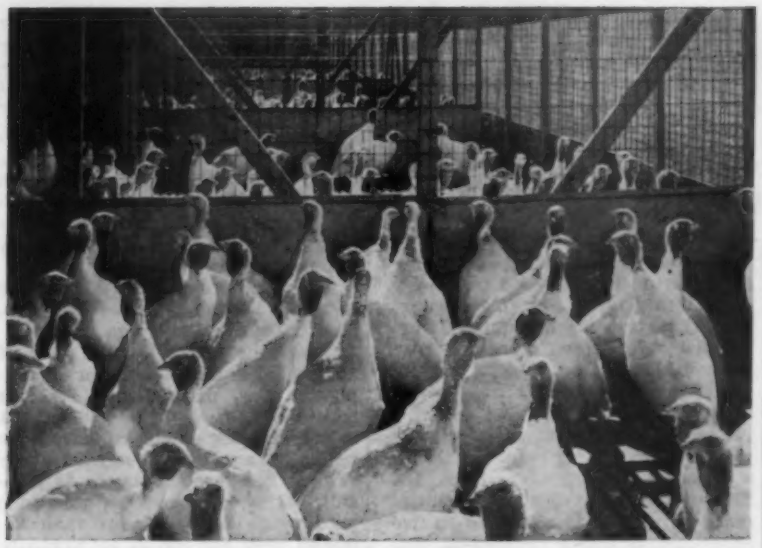
"Energy represents a greater portion of the total cost of a bag of complete feed than any other nutrient," Dr. Snyder commented, "principally because more calories are needed than any other nutrient." He added that calories are not generally considered "too critical," but since many of them are needed they are "the most expensive portion of the ration."

And why the attention given to protein and amino acids for layers? Many questions need answering.

"Reports coming from college experiment stations are variable," Dr. Snyder said. "There are good data from New Jersey, Colorado and Wisconsin indicating that the protein requirement is about 13%. On the oth-

SHELL TESTING — Shells of eggs produced on Beacon rations are frequently checked with this device operated by Dr. John C. Scholes, poultry specialist.

PEN ENTRANCES—This view of new experimental laying unit shows entrances to seven pens, each with capacity for 150 layers. Eggs are gathered from aisle without disturbing birds. At far end of corridor are Frank Roberts (left), unit manager, and Dr. J. M. Snyder, director of Beacon's poultry research.



TURKEY UNIT—Slat-floor turkey experimental unit at Beacon poultry research farm has room for 100 birds in each of 12 pens. One side is paneled so it may be used for brooding experimental poults. Beacon is conducting tests with separately reared sexes to determine tom and hen nutrient requirements.

er hand, Texas and Tennessee data say that it's close to 17%.

"I can recall," Dr. Snyder continued, "that during World War II we used to play a lot of bridge. When the bidding was abnormal, someone usually remarked, 'Somebody's lying.' I suppose we could say, facetiously, that someone is lying about this business of the required protein level of the laying hen. Such need not be the case, however. Experimental findings from station to station may vary widely because of experimental conditions under which the work is done. Thus, it could well be that the southern hens eat less because of the warmer weather, and therefore they need to have a greater concentration of protein in what they eat in order to fulfill their daily protein requirements."

Dr. Snyder noted that Beacon Milling Co. has come up with "some very interesting findings" on the protein requirements of laying hens — and these findings are to be announced to the feed industry.

POULTRY FACILITIES—Describing Beacon's research facilities, Dr. Snyder said pilot tests for broilers are conducted in off-the-floor battery units at the company's nutritional laboratory and at its 60-acre poultry

INDUSTRY RELATIONSHIPS—Better industry relationships with the veterinary profession are fostered through Beacon's research program. Here Dr. Gilbert H. Porter (left), and Dr. Paul E. Newman (center), both of Beacon Milling Co. research staff, discuss new developments with members of the Central New York Veterinary Medical Society. During a recent meeting of the society at Cayuga, N.Y., 65 veterinarians learned of new feed research findings related to veterinary practice.

EXPERIMENTAL DAIRY HERD—Included in the feed testing herd at the Beacon dairy and livestock research farm near Cayuga, N.Y., are more than 100 registered Holsteins. The Beacon herd averages more than 15,000 lb. of milk and 500 lb. of fat annually.

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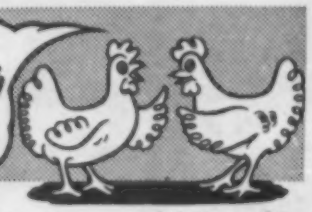

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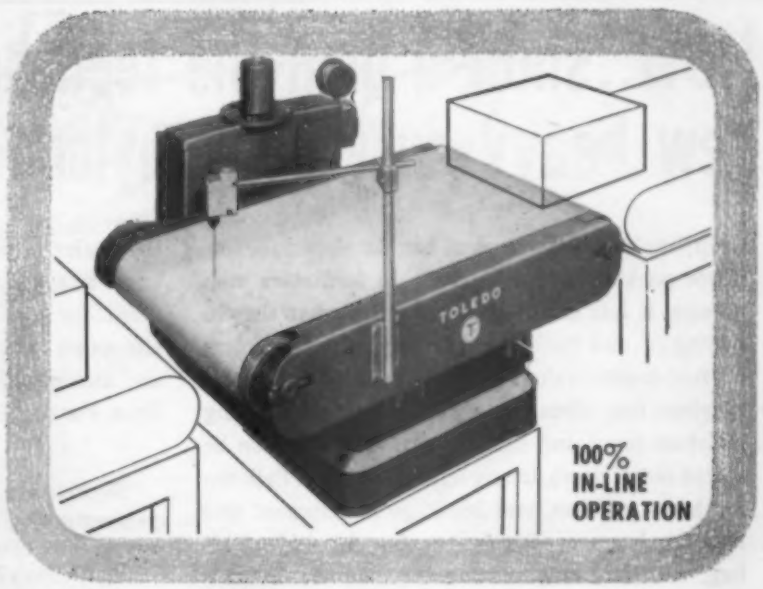

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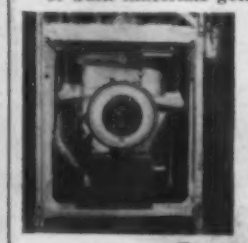

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IDENTICAL TWINS — Eleven sets of identical twin females are part of Beacon's dairy research herd. The value of each set for research purposes is said to be equivalent to that of 20 unrelated cows.

research farm. The laboratory has 24 battery units and there are 90 units at the farm. Each unit holds 10 birds.

"A large number of units is critical since experimental variables must be repeated," he said. "Otherwise, it is impossible to obtain statistically significant differences between formulations being tested."

Broilers in batteries are used only for pilot work. If formulations being tested show promise with birds in batteries, Beacon researchers follow up with experiments using birds on litter. For this purpose, Beacon uses a 16-pen house, each pen holding 250 birds.

Dr. Snyder said no more than four variables are tested. This means that each variable can be replicated four times.

Beacon also conducts some field tests, which, according to Dr. Snyder, are run on "a very widespread basis" with feeds made up out of Beacon's southern feed mills.

At present, the milling company has three experimental layer units with a total capacity of 3,200 birds housed in 32 different pens. Dr. Snyder said new facilities which will double the company's capacity for experimental work on layers are being constructed. In addition, plans are on the drawing board for still more layer facilities to be constructed next year.

Tests are run not only on laying feeds but on feeds needed to grow a chick into a layer. For this purpose, he said, 20 pens are maintained. During the "off season" period, these same facilities are used in testing meat-bird chicken diets and turkey diets.

For experiments in turkey nutrition, Beacon has 12 pens, each with a capacity of 100 mature birds. Dr. Snyder noted that Beacon's facilities make it possible to run three to five experimental flocks of turkeys and other meat birds through each year.

Beacon Milling Co. and the Long Island duck industry grew up together, and the company has maintained its interest in the development of duck feeds. Beacon has facilities for four pens of ducks.

DAIRY AND LIVESTOCK PROGRAM—Dr. L. S. Mix directs Beacon's dairy and livestock research program, which makes use of a 337-acre farm. Most of the research conducted on the farm involves dairy feeds.

The farm's experimental animals include a herd of purebred Holsteins, 50 of them of milking age.

"Over the years, a great deal of emphasis has been placed on improving the herd through good breeding practices," Dr. Snyder explained. "A sound breeding program, within the reach of any quality-minded dairy farmer, has been employed. As a result, we now have a top-producing herd which averages more than 15,000 lb. milk and 500 lb. fat annually. This has been accomplished without a heavy expenditure on 'show-type' animals."

Beacon started using identical twins in dairy feed research in 1952 to reduce the number of animals necessary for obtaining statistically significant data. "Genetic variation," he said, "is a plague to the researcher working with animals. For research purposes, one set of identical twins is worth about 20 of the unrelated animals. Much in the performance of an animal depends on heredity and environment, as well as the feed eaten."

Because it has been established that the feeding and care of young stock determine to some extent the quality of mature stock, Beacon conducts experiments using calves and growing stock.

Experimental swine facilities are maintained for 36 sows and their litters. A multiple farrowing unit, erected in 1958, is designed to produce 500 or more market hogs per year in complete confinement. In conjunction with this program, Beacon is evaluating "new and better hog rations."

Bird feeds and dog foods also get research attention from Beacon Milling Co. They are formulated by technical personnel in the company's poultry research department.

Technical Bulletins

In addition to research activities, Beacon researchers devote a good deal of time and effort to writing technical bulletins. At present, there are 10 of these books and pamphlets in print. They range in size from the 264-page "Profitable Poultry Management" down to the 52-page "Your Dog."

Other titles: Profitable Dairy Management, Profitable Turkey Management, Profitable Caged Layer Management, Profitable Duck Management, Profitable Pork Production, Beacon Egg Quality Merchandiser, Beacon Quality Poultry Merchandiser and Profitable Game Management.

Beacon's technical bulletins are distributed widely in the Northeast. Some are used as texts in high schools, Dr. Snyder noted.

It has long been a policy of Beacon to create "an atmosphere of intellectualism" among its research groups. "A growing plant partakes of the soil fertility in which it takes root," Dr. Snyder remarked. "The productivity of the plant is a reflection of the productivity of the soil. Research people quite obviously operate better in an environment where innovativeness and intellectualism are encouraged."

Beacon encourages "fleiss," too, Dr. Snyder said. He defined this German word as meaning the diligence, passion and capacity for hard work.

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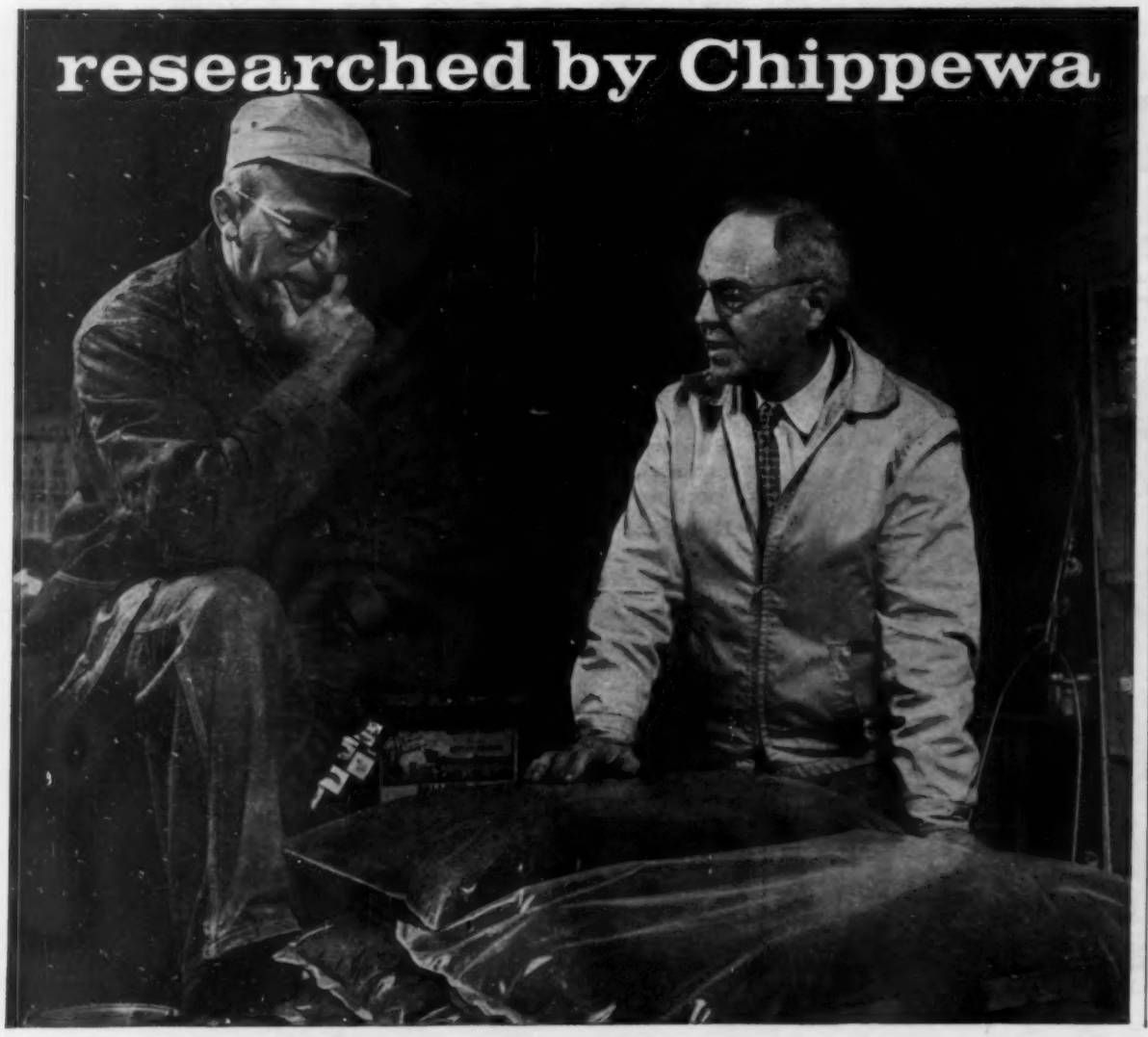

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Problems in Use of High Energy Poultry Rations

"We can get into trouble if the ration is not adequate and if there is an imbalance. But if the bird's requirements are met, high energy diets should do the job they are supposed to do."

By D. C. Henderson
University of Vermont

EDITOR'S NOTE: This paper was presented by Prof. Henderson, head of the poultry husbandry department at the University of Vermont, Burlington, at the 17th annual meeting of the Vermont Feed Dealers & Manufacturers Assn. recently in Burlington. The title of the address was, "Are Our Present High Energy Poultry Rations Responsible for Our Poultry Troubles?" A summary of the address appeared in Feedstuffs Oct. 10, page 6. In this article the author outlines nutritional requirements of poultry when fed a high energy ration.

INTRODUCTION

Changes in Ingredients: In considering this question, "Are our present high energy poultry rations responsible for poultry troubles?", it would seem desirable to review some of the major changes that have taken place in poultry rations in the last decade or more.

The nutritionists and feed interests of a few years ago were using natural foods—corn, wheat, oats, alfalfa meal, cod liver oil, and even dried milk. In addition, proteins from fish and animal sources were used quite extensively. These feed ingredients are complex when viewed from their feeding value.

Today, modern methods of manufacture are changing the nature of some of these feed ingredients. For example, a ration today may contain degerminated cereals or cereal by-products. These may be deficient in vitamins, whereas the same mixture with regular products would supply plenty of vitamins. That is, the method of preparing any feed and the conditions of temperature and oxidation to which it is subjected will affect the feeding value. In the more intensive manufacturing processes there is a greater likelihood of the destruction of some factors.

Changes in Soil: Secondly, there is a possibility that some of the feeds are undergoing changes in composition owing to changes in the supply of elements in the soil. Depletion of minerals or conversion of some of them into an insoluble form might render them less available to the plant. It is suspected, furthermore, that conditions of drouth might influence the nutrient value of the feed produced.

Changes in Productive Energy: Thirdly, there has been a tremendous increase in the productive energy of today's rations over those used 20 years ago. For example, the 1959 New England College Conference broiler ration contained roughly 27% more energy than the 1939 ration. Much of this increase in energy is secured by using more yellow corn in the ration and eliminating wheat bran, wheat flour middlings and ground oats.

Furthermore, animal or vegetable fats are incorporated in many of our present day rations. These products are extremely high in energy and consequently add to the efficiency of the diet.

Likewise, 20 years ago we recommended 100 lb. of alfalfa leaf meal in a ton of broiler mash. This has been cut in half in today's formula. Yellow corn contains more than four times as many calories per pound as does alfalfa leaf meal. Consequently, as you cut down on the amount of alfalfa leaf meal and increase the amount of corn, you build up the energy level of the ration.

EFFICIENCY RATIONS

Workers in the nutrition field have been and still are trying to narrow the gap between the input of feed and the output of poultry products. For example, a few short years ago it required about 14 lb. of feed and 12 weeks of growing time to produce a 3½ lb. bird. Today, this same bird is produced on 9 lb. of feed or less, and the job is done in 8-9 weeks. That is, the gap has been narrowed as far as the amount of feed has been concerned, and also as far as the length of the feeding period is concerned.

Likewise, it formerly required between 7 and 8 lb. of feed to produce 1 doz. eggs. In the recent New York Random Sample Tests carried through 500 days of age, the better flocks had an input of 4.3-4.4 lb. of feed for each dozen eggs produced during the laying year. That is, one dozen eggs was produced on from 50 to 60% of the amount of feed previously required.

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Illustrated below is the Sprout-Waldron "FM" horizontal feed mixer which is fast becoming the industry's standard for the mixing of dry feeds. Economical to operate and built for trouble-free performance, the "FM" mixer is designed for rapid, yet thorough mixing in medium and low capacity feed mills, as well as in high production mills where efficient mixing at highest rate and lowest cost is paramount. The modern approach to rapid automatic batching utilizes the "FM" mixer plus a surge bin which actually serves as a second mixer.

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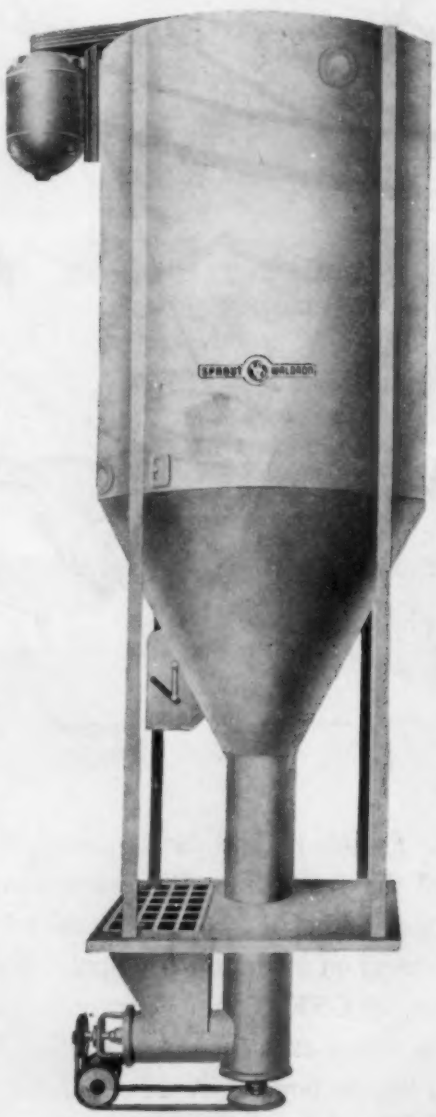

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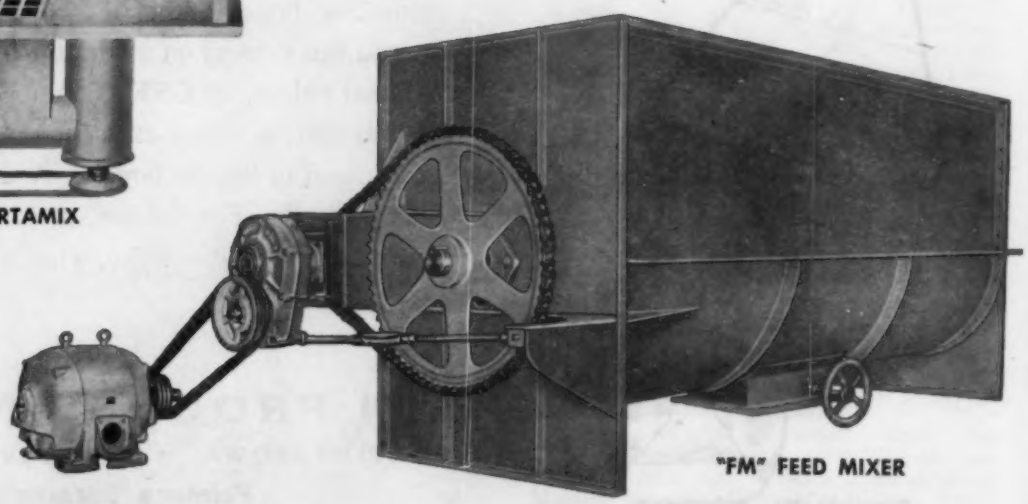
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the ladder in efficiency (be it the production of broilers or eggs), the smaller amount of feed required must contain all of the essentials needed in maintaining the health of the bird and the performance of the bird. That is, the ration must be reinforced and balanced more carefully than was the case in the past.

Just recently E. P. Singsen, L. D. Matterson, J. Tlustohowicz, and L. M. Potter (1) studied the effect of energy intake and type of diet on the performance of White Plymouth Rock hens from the standpoint of obesity, egg production, mortality and efficiency of feed utilization for egg production.

The diets were calculated to contain 857 and 1,014 calories of productive energy per pound. They were fed both ad libitum and on a controlled basis. The results these investigators obtained are very interesting. Ad libitum feeding of a high energy diet increased body weight and mortality, and maintained production on a hen-day basis, but not on a hen-housed basis. On the other hand, controlled feeding of a high energy diet reduced mortality, controlled body weight gains and maintained egg production. Ad libitum feeding of a low energy diet gave very satisfactory performance but was markedly less efficient.

Likewise, W. F. Pepper and co-workers (2) reported in March, 1959 (Poultry Science) that there was no difference in egg production or feed required per dozen eggs between those reared on high and those reared on low energy diets.

It would seem, on the basis of some research work published in the last year or so, that it might be desirable to reconsider and re-value our present high energy rations from the standpoint of results as measured in terms of egg production, bird health and profit.

CANNIBALISM

Schaible and co-workers (3), Miller and Bearse (4), and D. C. Kennard (5) are some of the investigators who reported a higher incidence of cannibalism when the fiber in the ration was decreased and the energy increased.

It is claimed that for each 1% increase in fiber over 4%, you could expect a 4½% decrease in efficiency. Conversely, many of the early investigators (a few previously cited) found that as they increased the productive energy value of the ration through the addition of corn, they tended to increase the trouble from cannibalism.

Titus (6) says, "There is evidence that feather picking and cannibalism are likely to appear if diets of very low fiber content are fed. However, the exact nature of the nutritional deficiency or deficiencies involved is not known. But it has been found that feather picking and cannibalism are less likely to occur if the diet contains about 20% of barley or oats, or about 30% of bran and middlings."

Bearse and co-workers (7) compared the incidence of cannibalism in growing White Leghorn pullets when the rations were fed as mash and as pellets. Three rations containing 8, 13, and 18% fiber were used. The increased fiber in the ration was brought about by replacing corn with oat mill feed. There was a greater amount of cannibalism in pellet fed groups. The higher levels of fiber did not prevent feather picking from becoming a serious problem when the ration was fed in pellet form, but did so when fed in the all-mash form.

PROTEIN/CALORIE RELATIONSHIP

The 1960 New England College Conference poultry rations contain the following protein/calorie ratios:

Type of Ration	Protein/Calorie Ratio
Broiler (starter)	1:43.5
Broiler (finisher)	1:52.0
Starter	1:44.7
Grower	1:54.1-59.2
Layer	1:56.1-60.0
Breeder	1:57.7-60.8

It will be noted that the starter diets contain about 45 calories for each 1% of protein. The diets for adult birds contain from 55 to 60 calories for each 1% of protein.

Miller and co-workers (8) studied the minimum protein requirements at different energy levels for Leghorn pullets kept in laying batteries. In one experiment, levels of 640, 745, and 930 calories per pound were fed. The protein levels used ranged from 12 to 21% for each energy level. No difference in body weight or egg production was observed. Feed efficiency increased as the caloric content of the diet increased.

The high efficiency ration must supply the proper amounts of all of the essential nutrients (carbohydrates, proteins, minerals, and vitamins) in the proper relationship to one another in order to obtain the best production of which the bird is capable. As the amount of feed required to produce a pound of meat or a dozen eggs is cut down, it is of the greatest importance that all of the nutrients in the diet be in proper balance and adequate.

NUTRITIONAL ADEQUACY

(a) Vitamins—Vitamin B has been found to be composed of a large number of vitamins or vitamin-like factors. This vitamin is water-soluble and growth promoting. The principal members of this complex from the standpoint of poultry feeding are thiamine (B_1), riboflavin (B_2 or G), pantothenic acid and vitamin B_{12}.

Vitamin B_1 plays an important part in the metabolism of every living cell. It is also important in the utilization of carbohydrates by the bird or animal. That is, thiamine is needed for the oxidation of carbohydrates but, apparently, not for the oxidation of fats.

The caloric level of the present day rations has been increased by the addition of corn and in some cases, fat, at the expense of oats, bran, alfalfa meal and other low energy

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Bulletin 131-A

FEED BLENDER

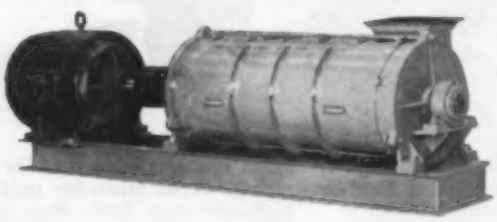
The high percentage of fats and oils currently being added to feed often makes it necessary to use special blenders in order to break up agglomerations or globules. This is ideally accomplished in the Sprout-Waldron hammer mill or single runner disc type feed blender, which do the job thoroughly and rapidly with a minimum of maintenance and power costs.

Bulletins 66-B and 122

CUSTOMIX

For the efficient high speed mixing of cold molasses to pre-mixed feeds, nothing quite matches the modern, streamlined Sprout-Waldron Customix, designed especially for the progressive custom mill requiring three to six tons per hour of lump-free quality feed.

Bulletin 98-A



COLDMIX

For the larger production rates, ranging from 7 to 20 tons per hour, the Sprout-Waldron deluxe Coldmix is recommended. S-W feed mixers are available as complete units with molasses pump and strainer and all needed accessories. A compact molasses heater is also available.

Bulletin 121

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MAYO SHELL CORP.
P. O. BOX 784 • HOUSTON, TEXAS

feeds. Thornton and co-workers (9), working with growing chicks, found that "thiamine was spared by a low calorie ration, or when the source of energy was fat.

"The high carbohydrate diet increased thiamine requirements sharply as shown by decreased growth, feed efficiency and the appearance of polyneuritis.

"The high fat diet with no thiamine generally gave complete protection against polyneuritis; however, normal growth did not occur."

On the basis of this work, it would seem entirely possible that as the energy of the ration is increased through the use of corn there is need for additional thiamine or vitamin B_1.

The whole grains, wheat by-products, alfalfa meal, and yeast are all good sources of vitamin B_1. However, as we lower or eliminate wheat by-products, alfalfa meal, etc., and increase the caloric level through the addition of a high carbohydrate ingredient such as corn, it is probable that there would be additional need for thiamine or B_1.

Vitamin D

Vitamin D products are closely related to fats and are soluble in fat solvents. It is necessary for normal mineral assimilation; therefore, it is necessary for egg production and normal shell texture.

The efficiency of utilization of calcium and phosphorus is increased by incorporating the proper amount of vitamin D in the ration. It is generally accepted that the calcium intake of chicks should not exceed 1% of the ration and that of hens, 3% of the ration. Satisfactory growth is usually obtained if the diet has about 170 International Chick Units of this vitamin per pound. However, for egg production, the level of vitamin D should be doubled, or about 340 International Chick Units of Vitamin D per pound.

(b) Calcium and Phosphorus—The calcium requirements of laying hens will depend upon the number of eggs laid and the amount of calcium in the egg exceeding that of other minerals. An average egg contains approximately 2 gm. of calcium, the greater part being present in the shell. In the absence of a sufficient supply of calcium, egg production is lowered and may finally cease, the egg shells becoming progressively thinner.

The importance of an adequate supply of calcium for the laying hen in a form that can be utilized is appreciated when it is realized that a 300-egg hen may secrete 1500 gm. (3.3 lb.) of calcium carbonate in their formation during a laying year.

During the early laying period, a pullet is in negative calcium balance (meaning that she is losing calcium from her body). After a period of negative balance she may become positive without any change in rate of laying. High egg production in the hen does not necessarily result in a loss of calcium from the system if a supply of this element is available in a useable form.

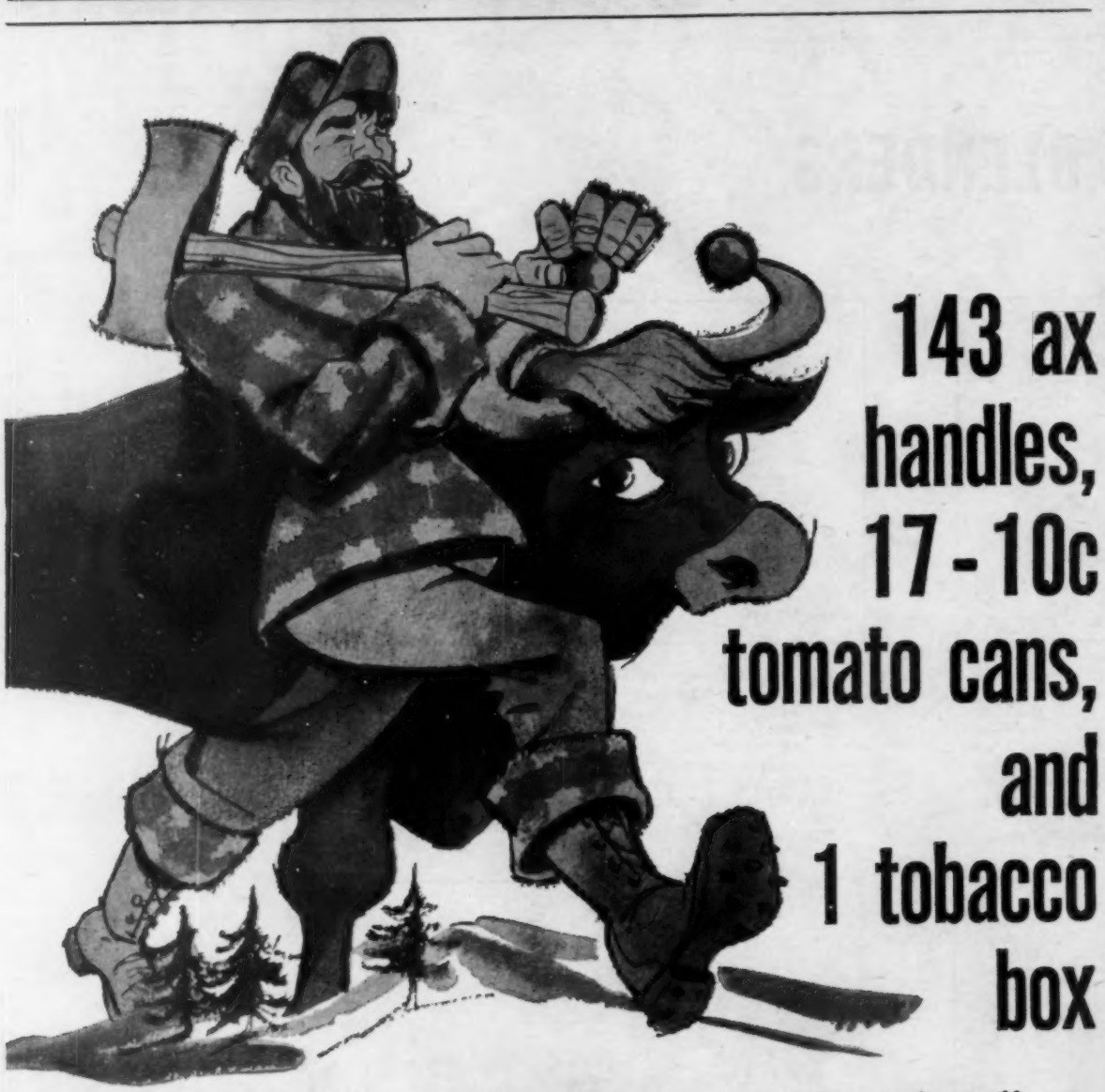
It is realized, of course, that as the level of egg production is increased, the need for minerals (especially calcium) is increased. Calcium, in addition to its use in shell formation, is essential for bone formation. It is also essential for clotting of blood.

What effect does the level of animal fat in the diet have on the calcium and phosphorus requirements? Pepper and co-workers (10), working with chicks, reported that "in the absence of added fat, 1% calcium was just as satisfactory as 1.2%. In the presence of added fat, increasing the level of calcium resulted in improved feed efficiency.

"There was no evidence that added fat increased the phosphorus requirement."

The writer is somewhat surprised that the addition of fat to the diet didn't increase the phosphorus re-

(Turn to PROBLEMS, page 104)



143 ax handles, 17-10c tomato cans, and 1 tobacco box

This odd assortment of material made up the first "official" horn-tip to horn-tip measurement of Paul Bunyan's famous blue ox, Babe. Unfortunately, Babe's later growth could never be recorded because he "growed" two feet more each time you looked at him. No doubt about it . . . Paul Bunyan knew his onions when it came to productive livestock feeding.

Even though your feed can't turn out such fabulous creatures as this, it can produce far better real-life results for you and for your customers. Modern mills throughout the country have been achieving an entirely new concept of high-efficiency feeds through the addition of an important new ingredient . . . stabilized animal fat.

Animal fat increases feed efficiency more than any other single ingredient because it contains twice as much energy per pound. Its use makes possible new high-powered feeds for poultry, hogs, or cattle . . . high-efficiency feeds that mean better conversion, lower cost per pound of weight gain, and increased growth rate. In addition, animal fat adds better appearance and palatability, reduces dustiness in feed, and increases capacity of pellet mills.

You'll get better prices and more sales with your fat-fortified feeds because they do more for the user . . . give him greater profits through better results.

No matter if you're large or small, you can use animal fat easily and profitably to improve your product. Write for our free booklet that fully describes the application of fat to feed. You owe it to yourself to have this valuable information.

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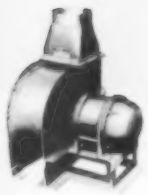
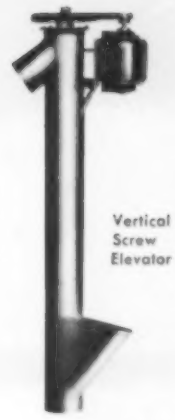
for top service and economy . . . increased profits!

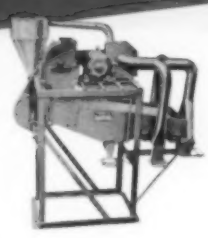


Grain Blower & Exhaust Fan



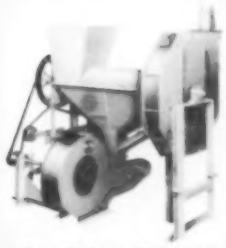
Vertical Screw Elevator

Cob Crusher for making Poultry Litter

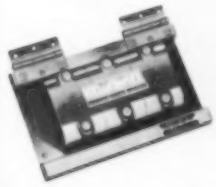


Corn Cutter and Grader with Aspirator

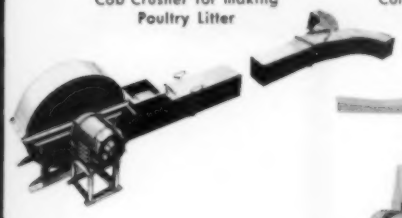
Vertical Feed Mixer ½ to 5 tons and larger



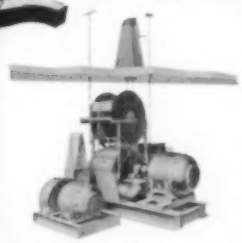
Corn Sheller with blowers for grain and cobs



Magnetic Separator protects mill machinery



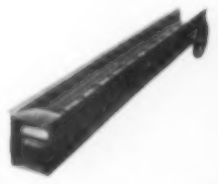
Forced Air Carloader with motor or belt drive



Remote Change Hammermill

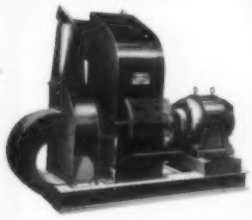
Twin Molasses Mixer

Corn Scalper with or without air cleaner

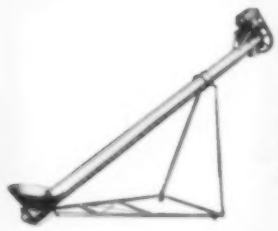


Chain Drag in double and single geared types

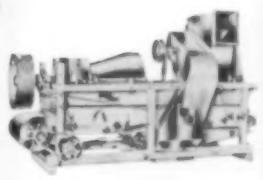
Electric Truck Hoist cuts handling costs



Instant Change Hammermills 12", 16", 20", 24" sizes



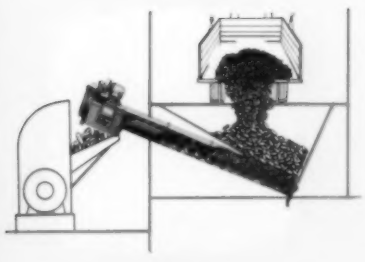
Portable Screw Elevator



Combined Sheller-Cleaner

Finger Type Corn Crusher and Feed Regulator

Grain Feeder



Pit Auger or Ear Corn Conveyor

The Duplex Mill & Manufacturing Company Springfield, Ohio

Yes, I'm interested in the KELLY DUPLEX machinery checked at the right. Please send me full information on these machines without any obligation.

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☐ Information on Free Mill Planning and Layout Service

Mail this Card– No Obligation

KELLY DUPLEX

✓Check Here!

- ☐ Twin Molasses Mixer
- ☐ Vertical Feed Mixer
- ☐ Hammermill
- ☐ Vertical Screw Elevator
- ☐ Portable Screw Elevator
- ☐ Bucket Elevator
- ☐ Pit Auger
- ☐ Chain Drag
- ☐ Electric Truck Hoist
- ☐ Corn Crusher—Regulator
- ☐ Corn Sheller with Blowers
- ☐ Regular Corn Sheller
- ☐ Pitless Corn Sheller
- ☐ Combined Sheller-Cleaner
- ☐ Gyrating Cleaner
- ☐ Corn Scalper
- ☐ Corn Cutter and Grader
- ☐ Cob Crusher
- ☐ Electric Bag Cleaner
- ☐ Forced Air Carloader
- ☐ Magnetic Separator
- ☐ Grain Feeder
- ☐ Grain Blower
- ☐ Complete Line Catalog

KELLY-DUPLEX twin Molasses Mixer

The mixing chamber, which consists of 2 rotary shafts and 36 individual paddles, is a model of blending efficiency.

Mixes quickly, evenly, thoroughly without balling or lumping . . . practically eliminates all cleaning!

With a Kelly Duplex Twin Molasses Mixer in your mill, there's big volume and big profits ahead for you in either private brand or custom mixed sweet feeds. Features include a complete, easy-to-adjust control system that lets one man set and maintain the most exacting molasses-feed proportions with absolute accuracy . . . a twin paddle rotor unexcelled for fast, thorough, even mixing—and self-cleaning characferistics . . . a conveyor that swivels to any position or is completely demountable . . . and many, many others.

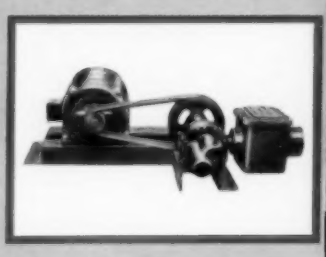
Before you buy, you owe it to yourself to compare this outstanding machine point for point (features, equipment, construction and cost) with all other makes . . . and see for yourself why a Kelly Duplex is your one best buy. The card will bring you full details.

Make your own "POINT FOR POINT" COMPARISON!

Mail card today for full details

Molasses Meter records in pounds, gives unexcelled accuracy, is easily read at a glance. Has turnback attachment. 3-way valve (at left) can be conveniently hooked up for retail bulk molasses sales.

Variable Speed Control on the 1 H.P. screw conveyor gives you positive, finger-tip control of feed flow into the mixer. Conveyor can be removed from mixer and used elsewhere, if so desired.



Molasses Pump is powered by 5 H.P. motor. Special strainer removes foreign matter before it can enter pump. Adjustable by-pass valve eliminates need for return pipe to molasses supply.

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VIA AIR MAIL

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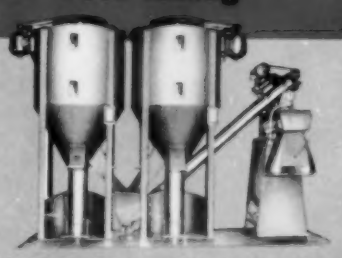
Continuous Sweet Feed Mixing



A "Twin" and two Kelly Duplex Feed Mixers give you fast, economical production . . . greater profits

While the batch from one feed mixer is being processed in the "Twin," the second mixer is preparing a new batch. Operation is fast . . . continuous . . . profitable. Vertical feed mixers are available in 6 sizes—½ to 5 ton—to meet your needs.

She can't read, but
she knows it's good news!

PRO-STREP in her ration
protects her health, aids her growth

To get more pigs to market—healthier, heavier and more uniform in size—give them well-balanced feeds with **Pro-Strep.**

Pro-Strep is a combination of two antibiotics—*penicillin* and *streptomycin*—each with a highly specific activity. In **Pro-Strep** they work together to produce added benefits neither could furnish alone...to stimulate feed consumption, improve weight gains and feed conversion, promote better uniformity of gains *and* help prevent costly outbreaks of swine enteritis or "necro."

Maximum Efficiency at Minimum Cost! There is *no* antibiotic feed supplement you can buy today that equals the effectiveness of **Pro-Strep**—at such low cost. Plan a **Pro-Strep** feeding program that will give *maximum* efficiency at levels of up to 50 grams per ton, for *maximum* disease protection and feeding benefits. Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

PRO-STREP
(procaine penicillin and streptomycin in a ratio of 1:3)
with THE MERCK MARGIN OF SURETY

MERCK

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AFMA Discussion

ECONOMIC AND MARKET RESEARCH

EDITOR'S NOTE: The four addresses presented here were part of a panel discussion, "Economic and Market Research, Its Place in the Picture," at the recent conference of the Sales Executives Council, American Feed Manufacturers Assn., in St. Louis. Mr. Ross is general manager of the National Food Co. at Fond du Lac, Wis.; Mr. Alexander is a former market researcher, now manager of the soy division and director of procurement for the Pillsbury Co. feed division, Clinton, Iowa; Dr. Erickson is director of marketing services for Kent Feeds, Muscatine, Iowa, and Mr. Wilkins is manager of the forecasting division of Ralston Purina. The discussion was moderated by Oakley M. Ray, director of market research for the AFMA.

T. E. Wilkins, Ralston Purina Co.

"I believe this has been the most neglected phase of our business. Even most of the colleges have overlooked this field for research."

For more than 30 years, the Ralston Purina Co. has maintained an economic research department. Although directly responsible to the buying department, those of us in this department work very closely with all the divisions and departments of the company—especially the marketing division.

One of our responsibilties is to forecast sales tonnage and margins. These forecasts are used for budget and planning purposes throughout the company.

In the marketing division, for example, these forecasts are used in establishing budgets for advertising, sales promotion, sales administration and other related expenditures. In this way, the company's executives are able to keep expenditures for these and other operations in line with anticipated income.

Another use of these forecasts is in establishing annual and special sales objectives, or quotas. Recommended quotas are submitted to our sales management committee by a quota committee, of which I am a member.

Of course, factors other than the sales estimate are considered in setting final quotas in the different areas, such as manpower concentration, sales potentials, manufacturing facilities and the sales tools available to the area.

Other services to the marketing division include periodic outlook reports covering the different segments of the livestock and poultry industry. These are presented to our product sales managers at regularly scheduled meetings.

These outlook reports serve a two-fold purpose—they inform the sales staff of the relative opportunities in the different feeding enterprises, and furnish a basis for a marketing program to fit the situation. For example, if an outlook for feeding profits is less favorable than past or current conditions, it might point out the need for a change in the marketing program in order to maintain or increase the current level of sales. Conversely, the prospect for a more favorable condition might result in a shift to a program better adapted to that situation.

We also prepare articles of an eco-

(Turn to T. E. WILKINS, page 42)

• • •

Bob Alexander, The Pillsbury Co.

"We use price forecasts to minimize risk, and the minute we make a forecast, we immediately develop a program of action to show how we can best use that forecast . . ."

Making and using commodity forecasts is certainly not an exact science. There is no one right way to make a forecast. All I can do is discuss how we at the Pillsbury Co. go about it.

First, assume we have a new man come into the department, and we want to teach him a little bit about forecasting. We indicate a procedure that we want him to follow. First we want him to become really acquainted with the commodity that he is going to forecast. Let us assume that he is going to forecast corn prices. He should know more about corn and corn prices than anyone in the company.

Step one is to actually sit down and make a list of everything that he thinks is important in corn and what makes corn prices change. We ask him to make this list for two reasons. Number one, the list will be used in the steps that follow. Number two is that we want him to be sure and avoid what we think is the unpardonable mistake of making a forecast first, and then finding some facts to justify the forecast.

It is possible to develop a "seat of the pants" forecast and then go out and dig up some facts that you may be able to sell management. We are completely against this, and obviously that is why we want him to list the facts first.

Analogy Studies

Now we have listed all the factors we think are causing prices to move. Step two we call an analogy study. Its purpose is to determine whether the facts listed are significant.

You may have, for example, large exports of corn. You may think this is going to cause the market to increase rapidly, but actually we may find in our analogy studies that exports of corn in August have very little effect on the market. For example, we know that a drouth in July takes precedence over practically everything as far as corn price movement. If you have a drouth in July, the price is going up. Now I'm talking in generalities, but this happens 99.9% of the time. I don't care if your exports are nothing, I don't care what the other factors in the market are, a drouth in July is significant.

So number one, by this analogy study we decided that a drouth in July is significant. Maybe the stocks of corn in Chicago are significant, a heavier production figure than last year is significant, so what we determine in step number two is which facts are actually significant, price-determining facts.

Then we want to refine the fore-

(Turn to BOB ALEXANDER, page 44)

PANEL SPEAKER—Bob Alexander, general manager of the Pillsbury soy division, and director of procurement for the feed division, was one of the participants in the panel discussion, "Economic and Market Research, Its Place in the Picture," during the recent first annual conference of the Sales Executives Council of the American Feed Manufacturers Assn. in St. Louis.

Mylan E. Ross, National Food Co.

"As companies grow . . . managers . . . grow further away from their prospective customers. It is in this area that marketing research does have some growth."

It has been pointed out that marketing is essentially a consumer oriented function, that it is in this area that marketing research can contribute something to a company in the feed industry.

It has also been noted that as companies grow, as markets change, the managers, the decision-makers of a company, grow further away from their prospective customers. It is in this area that marketing research does have some growth.

Rather than talk about specifics of jobs that I have done as an ex-marketing research manager, I want to sort of clear the air concerning what we are talking about. I want to acknowledge too that these are my ideas based upon having worked in marketing research for a number of years and under varying circumstances, and there is a right to disagree.

I think sometimes that marketing research has been thought of as an expensive luxury to business. Sometimes I believe it has been thought of as a substitute for good judgment. Some people have felt that marketing research has infringed upon some other department's rights or some practice that they had been working under in that particular company.

Maybe some of you have had experience with it, maybe you expected too much of it, and maybe you've been disappointed. All too often I think there has been a certain amount of mystery surrounding marketing research as a term. It's new, it has had a lot of play in the management publications. There has even been some feeling that people in marketing research were something of a different kind of animal.

Market Research Defined

To me, marketing research is the systematic, objective and exhaustive search for, and study of, the facts relative to any problem in the field of marketing. Now this implies that marketing research spends its time in gathering, tabulating or recording of facts, analyzing those facts, and out of that, coming up with possible solutions to marketing problems, to furnish the facts to be used by marketing people in arriving at a proper decision. In doing this it minimizes the risk of making errors in decisions or it increases the opportunity for

(Turn to MYLAN E. ROSS, page 46)

• • •

Dr. Leo Erickson, Kent Feeds, Inc.

"Marketing research cannot replace judgment, ingenuity and creative imagination. However, it can aid in giving direction to these desirable attributes."

We at Kent Feeds have had a marketing services department for only a couple of years. I think one might honestly say that it grew out of a recognition of the "marketing concept."

Even though I am sure that this term has never been used in our company, there is no question that there was a need for more formal study of this all-important determinant of success—the market. Also, as a part of this recognition of need, top management was becoming increasingly aware that our sales and merchandising efforts could more profitably be aligned with the constantly changing situation that confronted us in the market place.

Let me hasten to say that this was not a move prompted by desperation. Our sales and profit position had been excellent. Rather, I think that it was a lead from strength, in that company growth created certain problems of lack of communication.

No longer were we of a size where the decision-makers in our company knew the market from close personal contact. To the contrary, as our company grew, management found that their jobs were constantly expanding both in scope and complexity. Consequently, the detailed, up-to-date information that they had so readily with a small company was becoming increasingly difficult to obtain.

Although we have had problems in production capacity, I believe it is

For TOP Poultry Profits

PREVENTION of coccidiosis is not enough...

IMMUNITY must be developed early

GET BOTH *with* Trithiadol®

IN BROILERS, to achieve best feed conversion, not only must coccidiosis be prevented but natural immunity should be developed as early as possible. You get both with TRITHIADOL . . . unlike other coccidiostats which may not adequately protect against coccidiosis or may delay, or even prevent development of immunity. TRITHIADOL'S vital double action of "early immunity" and effective protection results in BEST FEED CONVERSION and GREATEST PROFITS. By switching to TRITHIADOL, broiler growers have earned extra profits of from $7.50 to $39.68 per 1000 birds.

IN REPLACEMENT CHICKENS, feeding TRITHIADOL encourages "early immunity" which continues in the laying period. This lasting immunity means effective prevention of coccidiosis, assuring TOP PROFITS through MAXIMUM EGG PRODUCTION.

ONLY TRITHIADOL gives "umbrella" protection . . . effective prevention and lasting immunity against *all 5* commercially important species of coccidia: E. tenella, E. necatrix, E. acervulina, E. maxima, E. hagani. Chart on TRITHIADOL tests furnishes decisive proof of immunity.

PROOF OF "TRITHIADOL IMMUNITY" FOLLOWING EXPOSURE TO COCCIDIA

BASED ON WEIGHT GAINS AFTER CHALLENGE*

TEST	Coccidiostat	Species and Number of coccidia used in immunity challenge	Weight Gain After Challenge 7 days	14 days	Immunity Developed
1	TRITHIADOL	E. tenella—500,000	13%	24%	YES
	TRITHIADOL	E. acervulina—2,000,000	10%	20%	YES
	CONTROL—NONE	None	10%	20%	
2	TRITHIADOL	Mixed challenge of E. tenella—400,000; E. acervulina and E. hagani—2,000,000 each.	15%	39%	YES
	CONTROL—NONE	None	16%	42%	
3	TRITHIADOL	Mixed challenge of E. tenella and E. necatrix—400,000 ea., E. acervulina, E. hagani and E. maxima—2,000,000 each.	32%	59%	YES
	CONTROL—NONE	None	25%	54%	

Unpublished Data—from a series of tests involving chickens picked at random from field flocks.

*Criterion of immunity is weight gain after challenge with the 5 commercially important species of coccidia, as compared with normal growth of non-challenged group. Weight gain of challenged group should approximate that of non-challenged group to demonstrate solid immunity.

ONLY TRITHIADOL HAS ALL THESE MAJOR ADVANTAGES

1. Effectively controls all economically important species of coccidia.
2. Completely safe for poultry; harmless to other warm blooded animals.
3. Superior feed conversion and weight gain.
4. Permits immunity to develop early.
5. Displays no adverse effects on egg production, shell or interior quality.
6. Comparatively no effect on hatchability or fertility.
7. Is compatible with all commonly used feed ingredients.
8. Stable, free flowing, easily blended with feeds.
9. Effectively reduces tapeworm and large roundworm burden—a substantial aid in any worm control program.

DON'T DELAY. Find out NOW how TRITHIADOL can help you earn top poultry profits through effective protection and early, lasting immunity against coccidiosis.

★ SEE YOUR STERWIN TECHNICALLY-TRAINED REPRESENTATIVE or write . . . phone or wire collect.

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correct to say that we have found such problems much easier to solve than the problems of maintaining profitably a continually expanding volume of sales. In order to guide decisions in the latter area, our management recognized that we needed continuing information on the location and composition of our market, and on the type of action that we should take to serve this market.

Market Research Need

Thus, in 1957, here was the situation: Kent Feeds was a company with extremely rapid growth. However, there were important questions concerning how this growth had come about and how it might be maintained. I was retained in a consulting capacity in an effort to determine whether marketing research could supply real aid in answering these questions. Apparently the company decided that it could, for after a few months we decided to make the association on a full-time basis.

My department is a rather lean one but, I believe, adequate for our purposes at this time. I have an assistant who compensates rather adequately for my deficiencies. His personal background and college training have been in agriculture. Additionally, although I have had considerable training in business statistics, his formal math knowledge is much better than mine. The only other person that we have is a clerk-typist, who also is expected to be a proficient calculator operator.

Our department operates in a staff capacity directly under the executive committee. I report through the executive vice president of our company to the executive committee. Although I know I am treading on dangerous ground in making such a statement to this particular group, I believe that reporting to the executive committee rather than to the sales manager has certain advantages.

I think that our sales manager can have much more confidence in the objectivity of my reports if he knows that I am not directly responsible to him. There is a fundamental principle of management that no one should ever be in the position where he is expected to be at the same time a subordinate to, and a critic of, another person.

Because a certain portion of my duties deals directly with evaluating sales efforts, my position is inherently that of a critic of sales management. In my opinion this has resulted in no friction with sales management. Rather, I think that our working relations have been excellent. Our sales manager is sufficiently mature to recognize that marketing research is intended to help him in performing his job. I should like to show you specifically how this is done by mentioning briefly some of the activities in which I engage.

Forecasting: We have done some long-term forecasting of our tonnage by analyzing our trend on sales and making appropriate projections into the future based on assumptions about the probability of our future growth taking a certain shape. Also, we have forecast our long-term growth by forecasting the future of the industry in our particular area, and making assumptions concerning our share of the total market.

In addition to the long-term forecasts, we make forecasts for single fiscal years. To illustrate, early in the summer preceding our fiscal year, which starts in October, we will submit a forecast of the tonnage that we might expect for the next fiscal year.

We approach the yearly estimate from several different angles. First, we have our long-term projection for total volume which describes in general what we might expect in company growth. This supplies a base figure, from which we may depart considerably for a single year, because, after all, it is simply a depiction of our average growth.

We also figure independently what our expectations should be in regard to individual product classes. Here again we have trend analyses, by product classes, to assist us. In addition, of course, we have by this time a pretty good idea of what our tonnage by product classes will be for the current year.

We factor these figures heavily by what we think the market is likely to be for each class of products. To aid in this respect, we have correlation studies that we have made in regard to the relationship between changes in market prices for the various classes of livestock, and changes in tonnage of the feeds for these livestock. Additionally, we give consideration to changes in our sales program and probable changes in competitive activity.

Forecast by Territories

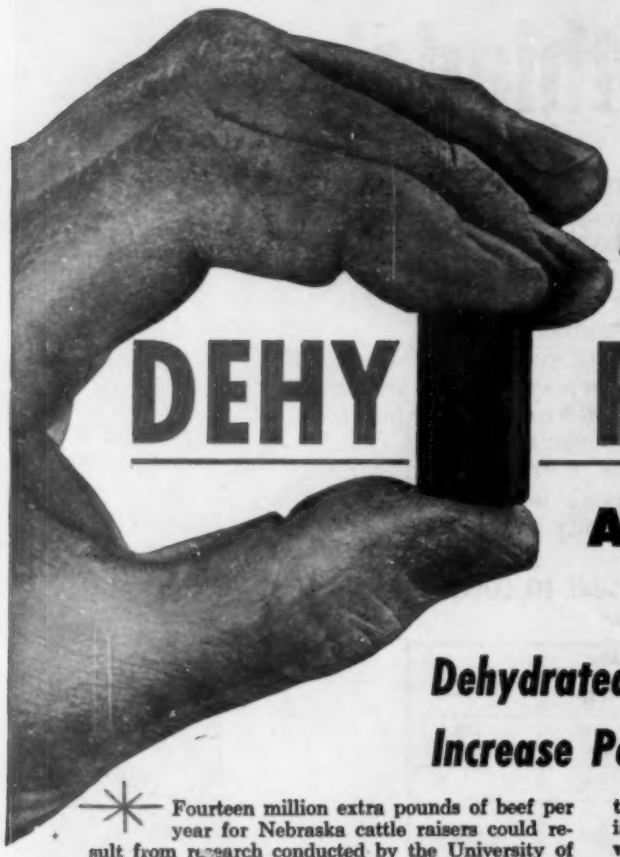
A third independent approach to our yearly forecast is by territories. We forecast each territory separately, considering individual territory rate of growth, changes in quality and quantity of manpower, etc. Here the sales manager and I work very closely.

In addition, this year we are forecasting tonnage for individual dealers. We intend for these dealer forecasts to provide an additional check on the accuracy of the over-all forecast. Also, we thereby have individual dealer goals that sales management may use as it sees fit.

These various separate estimates are then reconciled with each other. Obviously, since the estimates are made separately, some minor adjustments are necessary.

The tonnage figures by salesmen are then apportioned by months. We use indexes of each salesman's normal sales pattern by months to make this distribution, and totals are arrived at by district, plant and company. As you may suspect, our monthly estimates may be off considerably due to weather conditions, timing of promotions and other factors. I am close to the point of concluding that quarterly estimates are about as fine as we should go and still expect to maintain reasonable accuracy.

Constructing and Using Sales Po-



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DEHY PELLETS

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Dehydrated Alfalfa Can Increase Pounds of Beef!

Fourteen million extra pounds of beef per year for Nebraska cattle raisers could result from research conducted by the University of Nebraska Experiment Station on the use of dehydrated alfalfa when fed in a beef fattening ration, according to Dr. J. K. Matsushima.

At the Nebraska Station two feeding trials involving 160 animals have been completed within the last two years. For each test 80 yearling steers weighing approximately 650 pounds each were divided into eight lots. None of the animals had been fed or implanted with stilbestrol or similar material previous to the experiments. The basal ration for each lot consisted of ground shelled corn and prairie hay. Corn in the daily ration was unrestricted and the hay was limited to 3.5 to 4.5 pounds per head daily. Variables were the sources of protein with or without stilbestrol in the ration.

The first trial extends over a period of 155 days while the second trial was continued for 184 days. The combined results of the two feeding trials revealed that *animal gains increased as the amount of dehydrated alfalfa in the ration was increased.*

Average Daily Gains of Steers in Two Feeding Tests

Protein Supplement	1 lb. Soybean Oil Meal	.5 lb. Soybean Oil Meal and 1.25 lbs. Dehydrated Alfalfa	2.5 lbs. Dehydrated Alfalfa	5.0 lbs. Dehydrated Alfalfa
Without Stilbestrol in Ration	2.07	2.30	2.41	2.46
With Stilbestrol in Ration	2.47	2.59	2.64	2.64
% Increase in Gain by Adding Stilbestrol	19.3	12.6	9.5	7.3

From Nebraska Experiment Station Quarterly, Spring, 1959

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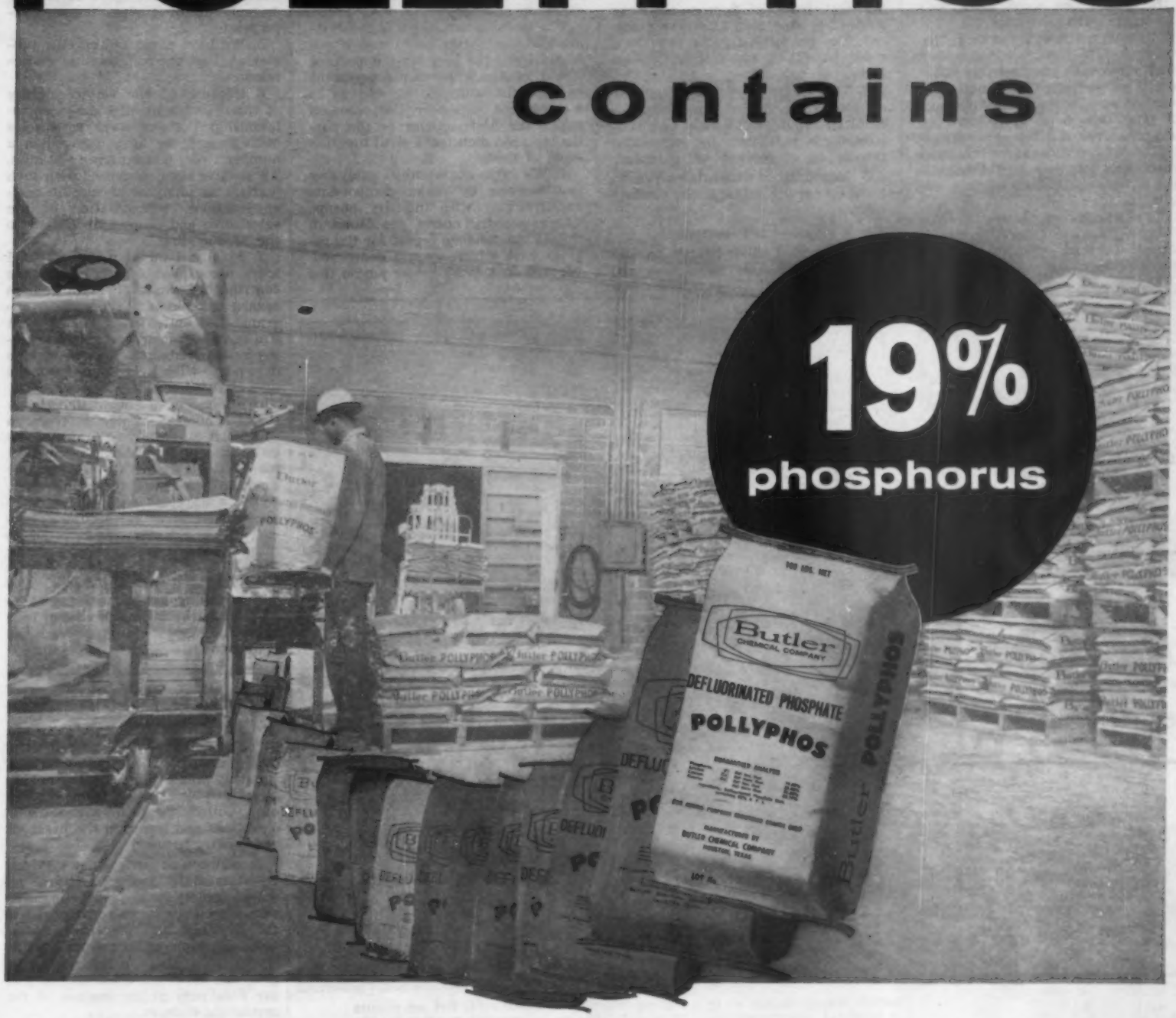

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tentials: Kent Feeds makes considerable use of sales potentials. We construe sales potential as being the opportunity to sell, based upon present conditions in regard to livestock numbers and per head consumption rates of formula feed. Such potential figures are computed geographically by type of product, the county being the basic unit. However, we have recently been doing some work with units smaller than counties.

With such a concept, the term "potential" is actually synonymous with industry sales. As you probably know, there is no source of information on consumption of formula feed by counties. The census of agriculture reports measures of dollar expenditures for feed by counties. However, these figures are not very useful because they include purchases of hay and grain.

The marketing research committee of the AFMA recognizes the importance of current, accurate potential figures. This whole matter of potentials ranks right up at the top of those studies which we intend to tackle.

How are these potential figures used by our company? There are several important uses to which they are put:

1. We use our measures of potential as a basic figure for determining territory size.

2. Our potential figures serve as guides for expansion into new areas.

3. The potential figures provide a guide to selling and distribution effort.

4. The figures are useful so far as evaluating dealer and salesman results, in that we can make comparisons on a like basis by expressing results as a percent of potential.

5. Measures of potential serve to point up certain soft spots by product classes.

Value of Potentials

In general, I think it may be said that our potentials have answered certain questions for us, such as why one salesman consistently outsells another when the two are apparently similar in knowledge, ability and effort. In other cases I think that our potentials have made it possible for us to ask the right questions—for example, as to why our market share on one type of product may be consistently greater than our market share on another.

The whole general area of forecasting and the setting and using of potentials are the two most important single jobs in which our department engages. In addition, we engage in a number of other activities; some on a periodic basis, others as the particular need dictates. I shall mention some of these:

1. We are continually analyzing our tonnage by major components and checking with industry norms. These industry norms are found in the AFMA tonnage report for the regions with which we are concerned. We will do a much better job on this when AFMA comes out with the new report on sales by states.

2. A price comparison of our feeds versus certain competitors' is maintained by our department.

3. We try to stay on top of geographic shifts of livestock numbers.

4. Although we believe the survey or questionnaire method to be overworked in marketing research, we do make use of it where it seems appropriate.

5. We have evaluated specific promotions that the company has undertaken.

6. Because of the service nature of the department, and the close relationship that we have with sales management, we have engaged in a number of nonrecurring studies. These have been concerned with such matters as analyses of specific dealer locations, compensation of the sales force and proposed additions to the product line.

7. Finally, I might mention that I spend a considerable part of my time contributing whatever I am able in regard to planning company programs and activities. I believe that if a company doesn't use its marketing research man in such a fashion it is not getting everything from the man that it has a right to expect.

In conclusion, I should like to say that, although marketing research can assist materially in informed decision-making, one should not expect more from it than it can legitimately render. It is certainly no panacea. Nor can it replace judgment, ingenuity and creative imagination. However, it can aid in giving direction to these desirable attributes. I think that with a proper respect for its strengths and its limitations, and with a willingness to make use of its results, marketing research can be a valuable support to effective sales management.

T. E. WILKINS

(Continued from page 38)

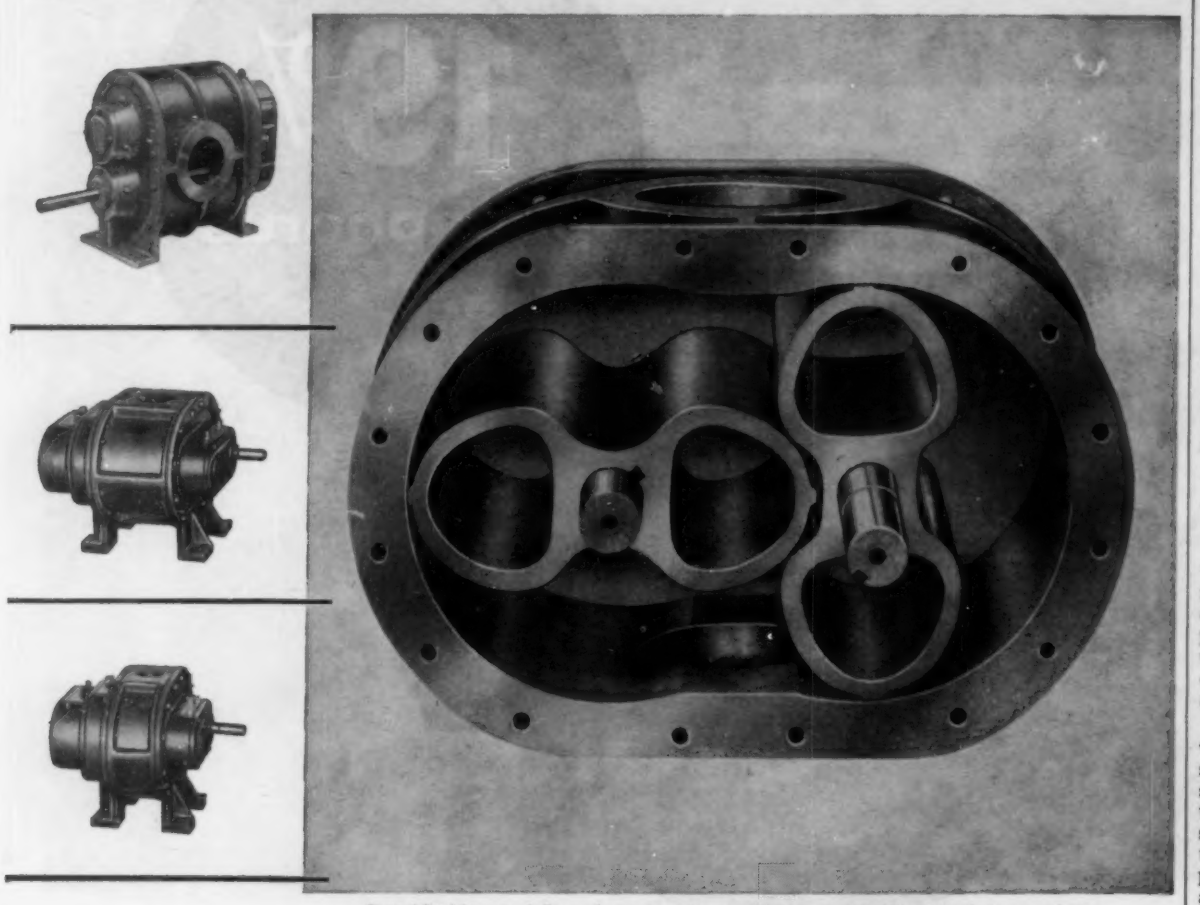
nomic nature which appear in our company publications. These are supplemented by a weekly report distributed within the company showing conditions and trends in the livestock and poultry industry.

In addition to our regular services, we occasionally conduct a special research project for the marketing division. This may cover some phase of the livestock and poultry industry, some development in the feed industry, or an analysis of some company program. However, these special jobs are done only at the request of the marketing division.

It is not my intention to convey the impression that our department does all the economic research for the marketing division. There are others within that division who also work on marketing research problems. But we are frequently called upon for information and data for use in the different phases of marketing research and planning. We try to keep a complete file on developments within our industry, as well as other information of an economic nature.

Why does our company do economic research? The answer is planning. Every company must anticipate and plan for the future if it expects to grow under a changing, competitive economy. Every successful business, whether it is one of the industrial giants or a one-man enterprise, must anticipate the demands for its products, the cost of doing business, and the action which must be taken to properly serve its customers.

We are all forecasters, whether we realize it or not. It is not a question



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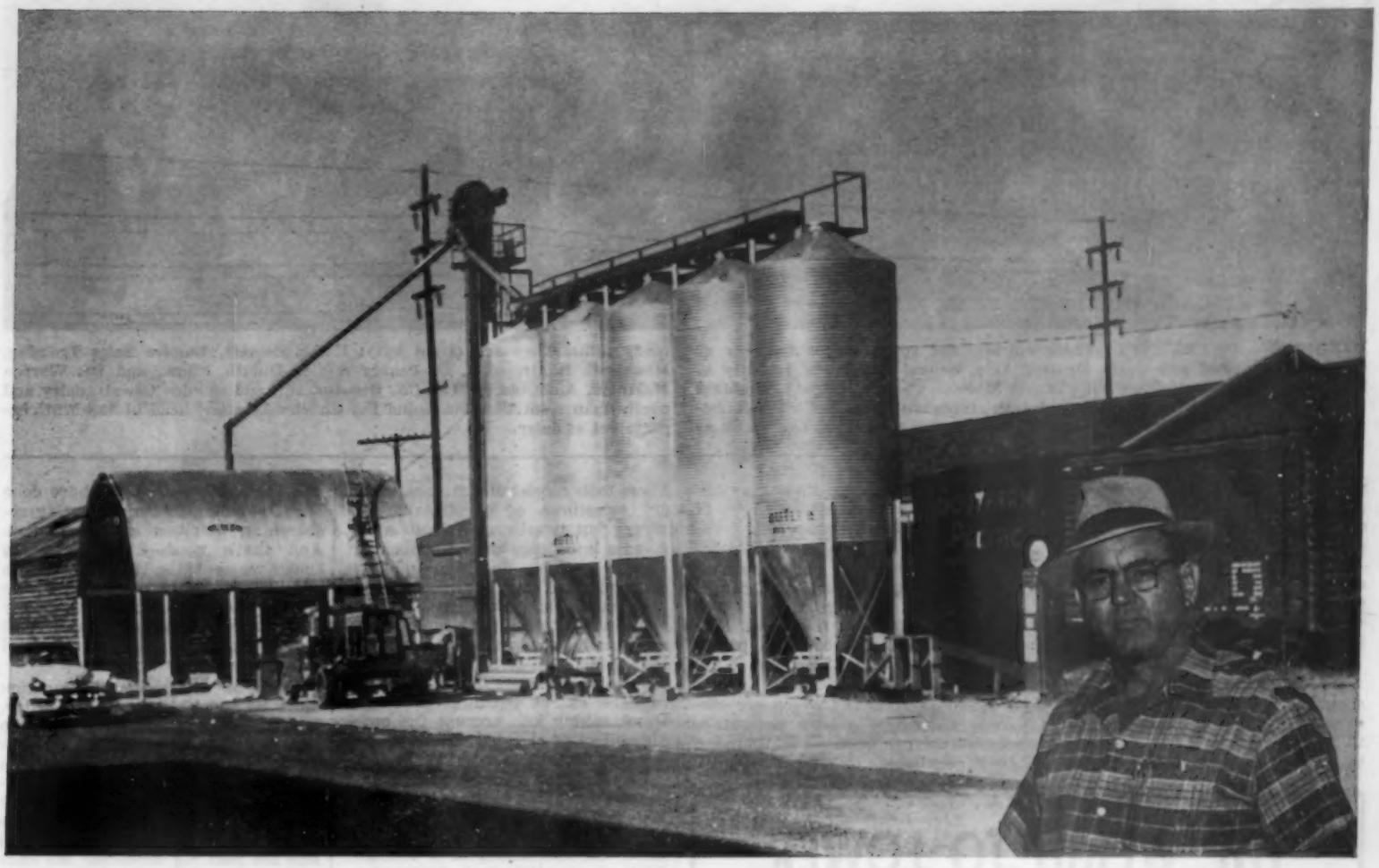
MOO--ORE NEWS IN FEEDSTUFFS



"Our 170-ton bulk feed station fits the needs of modern dairying . . . and of all commercial feeding of livestock and poultry."

"Our Purina Service Center is planned to meet the needs of our farming area"

—says Holt Condren, Feeders Supply Company, Fort Smith, Arkansas

"Feeders Supply Company recently moved to its present location," says Mr. Condren, "so we could be of greater service to farmers around Fort Smith."

That statement illustrates the policy that has been a major factor in agricultural diversification in the Fort Smith area. Practicing the policy has added substantially to the community's income and to the growth of the Purina Service Center owned by Mr. Condren.

The Feeder Supply staff is set up to help farmers. Mr. Condren and two of his men grew up on farms. Three staff members have special Purina training and do much of their work in the country. Purina Research developments are carried to farms by personal calls, meetings and trips to the Research Farm near St. Louis.

This work has contributed to the development of dairying around Fort Smith. It has introduced caged layers and sponsored commercial egg production and breeder hen flocks.

* * * *

"Purina has helped us in many ways," says Mr. Condren. "It has principles and policies that are inspiring. It brings proved ideas to us and is interested in our problems and in helping us solve them. Purina will work side-by-side with you on anything worthwhile."

As part of its program to help growers, Feeders Supply Company grades and wholesales eggs. At the left, Holt Condren, Lois Parker and Ethel Graham grade and pack eggs. At the right, IGA Foodliner Produce Man Fred Schaffer fills his cases with eggs delivered by Condren's truck.

"We stock nearly every Purina Product," says Mr. Condren, "because our general farming community needs them."

PURINA...YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

MICHIGAN CONFERENCE—These officials and speakers got together at the Michigan Feed and Grain Dealers Assn. annual conference recently at Michigan State University. First picture: Madison Clement (right), president of the Grain & Feed Dealers National Assn., talks with Bob McConkey, president of the Michigan group. In the second and third pictures, five speakers ready talks. They are (from left): Ralph Everett, Empire Sales Training, Miami; C. B. Green, F. H. Peavey & Co., Duluth, Minn., and Dr. Warren McMillan, A. E. Staley Mfg. Co., Decatur, Ill.; and Stanley Oswalt, dairy and poultryman from Vicksburg, and Dr. Charles Lassiter, head of the MSU department of dairy.

of whether it should be done, but how it should be done. I am sure we all agree that sound, organized forecasting which considers all known factors —both external economic forces and the internal company programs and policies—has many advantages over hunches, guesses and wishful thinking.

Forecast Limitations

But what is a forecast and how should it be regarded? A forecast is simply an estimate (and I want to underline estimate). It is an estimate of a reasonable probability, and not a certainty. You never know the accuracy of a forecast until the end of the period which it covers.

Contrary to what some people believe, forecasting is not a science. There is no mathematical formula, either simple or complex, which will consistently forecast feed sales, livestock and poultry production, prices, or anything else that I know of in the agricultural field.

However, forecasts which are reasonably accurate a large percentage of the time can be made by using the tools available to the economist. These tools consist of statistics, which are sometimes of questionable accuracy but usually reliable to a degree; a knowledge of the application of the available data; an unbiased and analytical mind; a knowledge of the industry and what has happened under similar conditions in the past, and finally, common sense and personal judgment. With these tools the economist endeavors to determine the probable extent and direction of the trend, taking into account the probable effect of changed conditions and new practices.

Our department has been fortunate in working with a group of executives who recognize the value of forecasts in planning, and at the same time know the limitations of a forecast. While they realize that absolute perfection is seldom attainable, they do expect a certain degree of accuracy. After all, a forecast must be reasonably accurate to serve its purpose.

All the success of our sales forecasts cannot be attributeed to the forecasting department. It is true we do the basic research, but good forecasting requires team work. One man sitting in an office far removed from the field of action can't possibly comprehend everything which will affect feed sales in all areas. Cooperation between all interested parties is essential.

Industry Sales Figures

I am going to take this opportunity to point out the desirability for more complete figures on total industry sales. As most of you know, information on this has been quite limited. It was not until the last few years that the industry put forth any organized effort along this line. The reports compiled by AFMA have been a big step forward, but we still have a long way to go. Total industry sales are one of the prime requisites to any type of marketing and sales planning.

There is also a great need for other facts and figures in the feed industry.

I believe this has been the most neglected phase of our business. Even most of the colleges have overlooked this field for research. We have done an outstanding job in supporting research in nutrition and production. And that's good—these were the things we needed in the earlier stages of industry development. But we have now reached maturity, and as every year passes and our problems become more complex, we will need more and more economic information.

Much of the needed information must be furnished by the industry, but the colleges can be a big help with a little encouragement. The industry helps support a production school, we give prizes for outstanding work in animal and poultry nutrition, and we offer scholarships for advanced study in these subjects. All this has paid big dividends. We have overcome many of our problems in nutrition and our production facilities have reached a high degree of efficiency. So now perhaps we can turn our attention to the economic aspects of our industry, and get the data needed to solve some of the problems of marketing.

BOB ALEXANDER

(Continued from page 38)

cast a little farther and we turn to step three—what we call a correlation study. All we do in correlation studies is to find a zone in which a price should fall. In other words, if corn is too high, relative to other commodities, a correlation study will bring it out. We look for previous years similar to the present year, where the same factors that are currently important were present. If the same factors were prevalent, why won't the price react about the same as it did in those years? Actually it is surprising to see how people do react. They tend to follow the same trends, the same patterns, every year that market factors are the same.

If we had, say, four years similar to the current situation, we would check price charts to see what the

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A *Lilly* MESSAGE TO THE MAN WHO WANTS TO SELL MORE FEED

A "Feeder-Dealer" discusses Hygromix from both sides of the fence

John Danckwart is both a hog feeder and a feed dealer. As a feeder, he uses Hygromix. As a dealer, he now sells Hygromix feeds on the solid basis of results from personal experience.

by Eugene S. Hahnel

Mr. Danckwart plans for about 100 litters a year from 48 brood sows. Under his management plan, the sows farrow twice a year, and new litters are born every two months. The young pigs get Hygromix early in their starter feed and continue until they average about 100 lbs.

JOHN W. DANCKWART, **FEEDER:**

"I think Hygromix is one of the biggest advancements in the history of swine raising. We haven't seen a worm since we started using it."

When we visited Mr. Danckwart's farm at Wabasha, Minnesota, he had 173 larger pigs and 71 smaller pigs on hand. The small pigs had been farrowed by seven sows, giving him a litter average of 10.3 pigs weaned per sow.

He told us that on April 4 the 71 pigs weighed an average of 46½ lbs. after consuming $2.46 worth of creep feed. On April 26, after eating 100 lbs. of Hygromix grower (at a total cost of $3.31), they averaged 86½ lbs. each. The cost of gain for this period figured out at 8.27 cents per pound.

"Our records show that our pigs have gained faster, and at less cost, since we began using Hygromix," Mr. Danckwart told us, " . . . and, the faster a pig gains, the less he costs because you aren't spending as much feed for body maintenance."

Mr. Danckwart summed up his personal experience with Hygromix feeds this way: "I think Hygromix is one of the biggest advancements in the history of swine raising. We haven't seen a worm since we started using it. When you control worms before they do their damage, you automatically prevent a lot of the problems that have plagued swine raisers up until now.

"We feel our pigs have been finishing more evenly since we started using Hygromix. We've had fewer tailenders, and we can top out a bigger share of our pigs at market time."

JOHN W. DANCKWART, **DEALER:**

"As a man who contacts a lot of farmers, I've come to the conclusion that Hygromix must be fed properly and continuously as recommended."

From his personal feeding experience with Hygromix, John learned several things which he passes on to his customers.

"I've come to the conclusion that Hygromix must be fed properly and continuously as recommended. You shouldn't let your customer run out of Hygromix concentrate and skip it for a week or two. Also, they shouldn't water down the level of Hygromix in the ration with pasture, slop, or grains. You've got to feed it right to get the best results.

"Sometimes, you've got to overcome an objection about the cost of the proper amount of supplement. I asked one man who complained, why he didn't save money by just putting five quarts of oil in his tractor instead of seven. He said, 'because it takes seven quarts.' I told him the same point applied to Hygromix feeds. When you feed the way you're supposed to, you get the results the manufacturer says you will."

An observant man, Mr. Danckwart found another advantage to Hygromix feeds that many customers may not be aware of. "If you watch hogs close, you'll see the bigger ones bully the smaller pigs away from the feed door. The little pigs have to sneak their feed, so they don't get enough. Hygromix seems to help the pigs get off to an even start, and there's fewer smaller ones to fall more and more behind."

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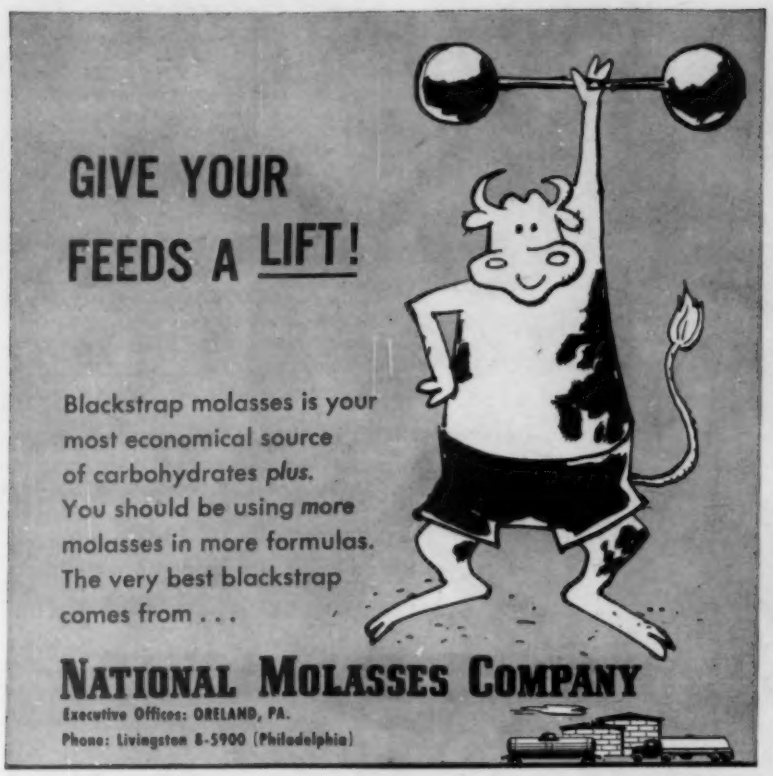
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price movement did in those four years, get out this year's price chart, compare the two and then extend the line.

If all the prices in the four years went the same way, it would be very simple. Obviously, they don't always do that, and at this point we come to the last step. This is the judgment step which is very important. If forecasting were an exact science, we could eliminate the judgment step, but we have to try to be as objective as possible in analyzing all the facts that we have developed thus far.

We know what the general price range is, we know what facts are pertinent and significant, we know what the other years indicated the price would do when the same factors were present, and then we come up with a forecast.

Using Forecasts

Now we have a forecast. What do we do with it? We have a strong feeling in Pillsbury that a forecast is useless unless it's put into operation. You can work all week or all year, come up with a wonderful forecast, and if you don't put it into operation, it's worthless.

We do put a lot of significance and a lot of confidence in forecasts. But how do we use them? We use them entirely to minimize risk in the company. As you know, being in the feed industry and the food industry, you have plenty of risk within your companies without creating new risks. So we in Pillsbury do use price forecasts to minimize risk, and the minute we make a forecast, we immediately develop a program of action to show how we can best use that forecast assuming that it is right.

At the same time we develop another program of action to minimize losses, assuming that the forecast is wrong. I think the two are very closely related and have to be together because we know we are going to be wrong some of the time. We forecast with that assumption.

We have in our company three basic types of products, and I think this is true in most companies. We have what we call sensitive price items, semi-sticky price items and sticky price items. These are very nebulous terms, so let me tell a little about them.

Sticky price items are what we call specialty items. The price does not move very much over a period of time on these items. These are normally a little higher margin items. The price of a specialty item stays just about steady for a period of maybe six months or a year. Prices may be high or low but at least they stay steady. Our big problem in using forecasts in sticky price items is the forward buying problem. We have to know when we should take a position or when we should buy the ingredients that go into this product that has a sticky price. We know that if the ingredient market goes up and we don't have a position, that we are just as bad off as if we do have a position and the ingredient market goes down. You can't hide behind a tree and say you are not going to take any position. In an item that has a fixed price, it's my strong belief that you have to take a position if your forecast indicates that the market is going up more than it is going down. In other words, how can you minimize your risk If you have more risk in the price going up because you are not covered than you have if it goes down and you are covered, then you should take a position. So that is how we use forecasts in determining whether we should take a position or take a forward buying position against sticky price items.

Then we go into the so called semi-sticky price items. This is an area into which some of the feeds might fall. Certainly, some industrial products fall into this classification, where the price moves pretty close to the ingredient price. It doesn't move everyday but certainly moves more than once a year or once every six months.

You have a price of the final product, and the price of your ingredients, and the margin is a little smaller than it was in the first example. Your price of ingredients increases, and soon your end product price goes up. Here we use forecasts in two ways.

One is to take a forward position when the odds are great that the market is going to increase a lot, and we are going to have a big risk by not having any position. Secondly, we use the forecast in hedging because here we obviously have to have inventories of ingredients, and have to decide where to put the hedges—how, when, etc.

Feed Prices

Then we get into the so-called sensitive price items. This is the area that includes most of the livestock and poultry feeds. It is certainly the area that includes the bulk flour of Pillsbury. Let's take bulk flour as an example. If the wheat price goes up one day, the flour price goes up the same day. The margin to start with is fairly small and the two follow each other right together—the ingredient price and the end product.

Here the big problem is hedging. We spend 99% of time trying to figure out how to hedge the inventories —wheat inventories, corn inventories, soybean inventories, etc. In this area we make the price forecast to come up with some way of hedging.

Obviously this sketchy description is not going, in any manner or means, to make price analysts out of any of you, but I certainly hope that to some degree it has given you an idea of how we go about price forecasting. I also hope that it has given you some evidence of my confidence in the area of price forecasting and its use in industry.

MYLAN E. ROSS

(Continued from page 38)

any decision to be right. There are a lot of subsidiary types of marketing research such as sales research, sales analysis, consumer research, and advertising research. Even economic research is found in marketing research departments.

I would like to mention some of the areas wherein marketing research can be of assistance. First of all, there is the study of the market itself—its composition, what is being fed and who is being buying the feed. Out of that we set the sales objectives and potentials.

There is marketing research to be done relative to product development. I am sure our product research people can come up with good ideas and

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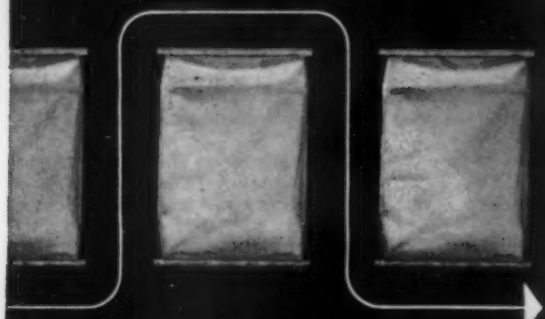

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products, but probably it would save some mistakes if we did a little exploring to see if someone wanted to buy the product, or if we could find a way to convince people that they should have that product.

There is work to be done on the package—the bag design, something that might attract customers.

There can be research with the sales force to help management evaluate performance, maybe a study of incentive systems and bonuses, etc. There may be research in pricing and the effectiveness of dollars spent in advertising. On merchandising we get into the appraisal of the costs and service, and broadly into the matter of company sales planning.

Guides for "Beginners"

I would like to indicate a few guides first of all to the company that may be considering adding a marketing research function or a formal program. For those in companies where there is a marketing research program, if I express an idea, perhaps you can weigh it in evaluating the effectiveness of your present department, or expanding on the development of that department.

It is very important that there is the right company atmosphere for marketing research. First, top management should assure itself that it is research-minded. Second, sales management needs to be open-minded, to have the courage to accept facts, and to consider the path which those facts might indicate is a proper direction. I am aware of the near demise of research in some companies where certainly a lot of organization and reorganization have come about because of the lack of a proper company atmosphere. It is unfortunate that some of the non-marketing minded people tend to give lip service to research, but then accept some findings and discard others largely on the basis of preconceptions and prejudices.

Where might market research be placed in a company? Probably the place today for marketing research is in the marketing division, but I state that with one reservation. Marketing research can be at that point in the business provided that it is a truly integrated marketing department. I bring that out because there are variations in the recognition of marketing in some companies where, instead of the marketing department being a coordinated effort of getting products to consumers, marketing activities are divided, and there are one, two, three, or maybe more executives concerned with the various parts. If that be the case there may be other alternatives that would be better. It might be better to report to the product division vice president or general manager. Some companies report directly to the president. I think this should be decided by where the research job can contribute most, and where it has the greatest freedom to evaluate facts relative to a marketing problem.

I recognize that these are my opinions, held perhaps by a large number of people in marketing research in industry, but at the same time the individual company has many problems to answer as to what it will do, and who should fill that job.

The Small Companies

Is market research something that only the large company can afford? How can a small company which cannot afford a market research department get started on a market research program?

We all tend to fall into the trap of talking about market research as a department and not as a function. Every company, every executive is going through some of the same processes or market research that a man who carried such a title would go through; in other words, an analysis of some of the figures that come across your desk. I think that is the start of it.

I classify the company that I am with as a small company. We are making use of some research, and we intend to make a lot more use of it. The first step might be to give an employee an assignment, not his full-time job, but to define a problem, and with him to identify some of the facts that you want to learn. There are many facts that will help you just within your own company records and your own filing cabinets.

The help of an advertising agency is available to most companies. A good many agencies have a department or an individual who is assigned to research.

Also, there are many very fine independent research companies whose business it is to do research for companies of all sizes. One of the advantages to this sort of an approach is that you are doing it on a job basis, which is a good way to start with a small company. So I think very definitely that any business can use research, and there are a lot of good avenues open to every company.

Hooker to Establish New Corporate Offices

NEW YORK—The board of directors of Hooker Chemical Corp. has voted to establish corporate headquarters at 666 Fifth Ave., New York City, according to a recent announcement by Thomas E. Moffitt, president.

The decision involves only 15-20 people in certain corporate departments out of approximately 461 corporate personnel and a total of about 2,550 employed by Hooker at Niagara Falls, Mr. Moffitt said.

Many corporate functions which can be performed more effectively at Niagara Falls will continue to be handled there entirely. Some 335 persons employed in the central research and central engineering departments will continue undisturbed. The corporate accounting, general development and traffic departments and others will also remain.

Hooker's phosphorus division headquarters is at Jeffersonville, Ind., with plants at Columbia, Tenn.; Adams, Mass., and Dallas, Texas.

EGGS LOST

KNOX, IND.—Mrs. Violet Hasnel said she lost 300,000 eggs in incubators as an indirect result of a fire which destroyed the Starke County News printing plant. Mrs. Hasnel, owner of the Linden Poultry Farm next to the printing plant southeast of Knox, said the $60,000 fire melted power lines, allowing the incubators to cool.

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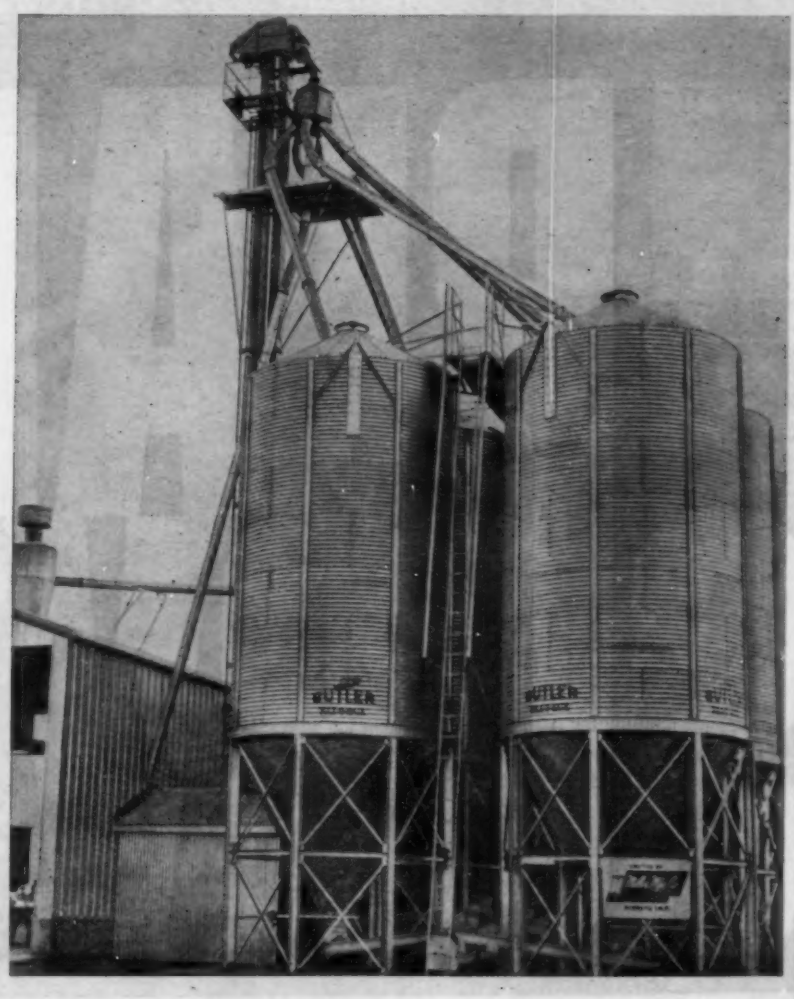

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Since HEPZIDE was introduced, it has proved a valuable aid in protecting against the parasites responsible for blackhead in turkeys and chickens and hexamitiasis in turkeys. Now... HEPZIDE "30" added to your rations will help provide growers with *protection* against costly outbreaks of these two important protozoan diseases, with a range of use levels to meet varying field conditions.

Absence of Side Effects. Thoroughly tested under rigorous field conditions, HEPZIDE has proved remarkably safe.

HEPZIDE does not interfere with
- growth
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- subsequent egg production
- fertility or hatchability

Sustained Feed Consumption. Because HEPZIDE in feeds at recommended levels is palatable, rations are readily consumed by young, growing and mature birds. Thus, birds can receive protection from brooding to marketing.

Through reducing disease incidence and maintaining feed consumption, HEPZIDE helps poults make consistent gains in weight...helps growers finish their birds with profitable feed conversion ratios.

Benefits of Preventive Program. The most practical and economical approach to the problem of blackhead and hexamitiasis is the *continuous* use of feeds medicated with HEPZIDE. Prophylactic levels of this compound will help check tissue damage and mortality as a result of these diseases, *and your growers market heavier birds at an earlier age.*

Merck & Co., Inc., Chemical Division, Rahway, N. J.

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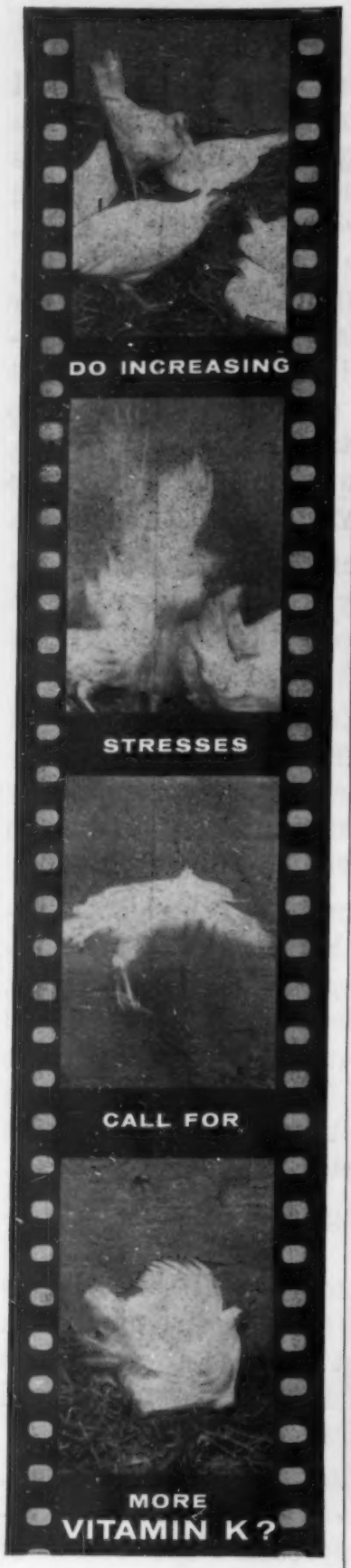

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S. E. Egg Operation Includes Production, Handling, Marketing

By Special Correspondent

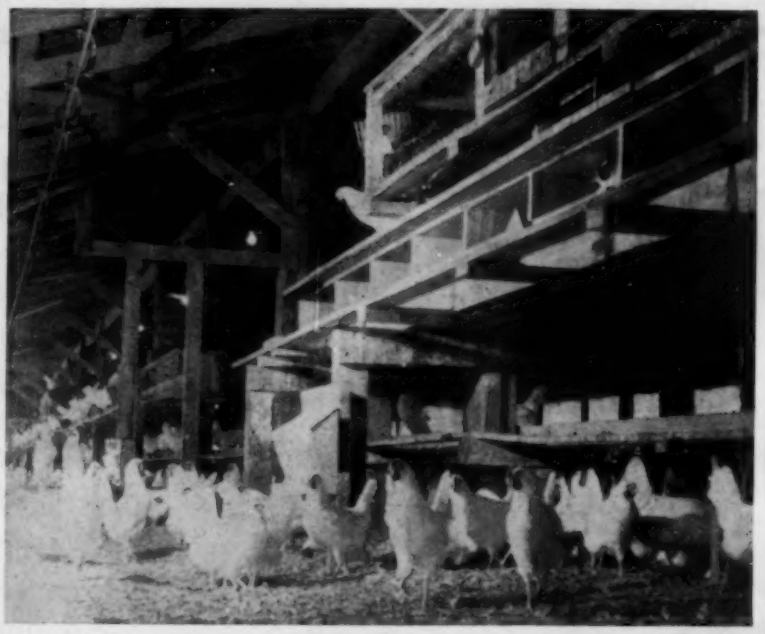
Commercial egg production in the Southeast is in a stage of expansion, and integration is involved to a great extent in this development.

An example of owner-integrated operations is that of Sidney Miller, president of the Georgia Egg Assn. The Irwinton, Ga., man is one of the pioneer commercial egg producers of the "Peach State," and his operation includes production, handling and marketing.

The beginning of Mr. Miller's egg-producing business, which now involves some 25,000 layers, goes back to when he was a 4-H Club member with hens for a club project. His project became a business about nine years ago. He went into egg production on a commercial scale when large feed manufacturers were increasing egg production in Alabama, Georgia and Florida.

From a production increase standpoint, the promotion of layer operations was successful. But many operations failed because of inadequate marketing facilities. Mr. Miller's was the only one of five such projects in Wilkinson County to survive.

BRANDED EGGS—Sid Miller holds carton of branded eggs. Trade name "Wilco" is derived from Wilkinson County in which the Georgia egg enterprise is operated.



INSIDE LAYER HOUSE—Nests are raised to keep eggs clean and allow layers ample feeder and exercise space. Overhead cable can be seen in upper left corner of picture.

He markets most of his production in Macon and other nearby Georgia cities, some wholesale and a good portion in attractive cartons for direct consumer trade.

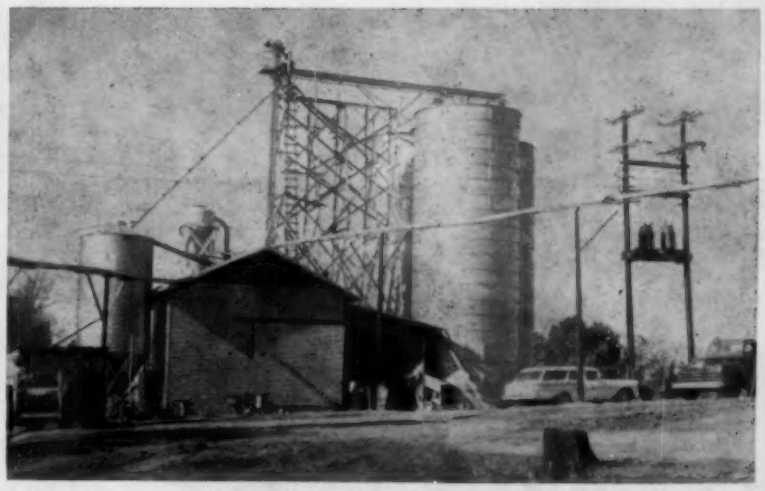
Mr. Miller recalled that in the "early days," with prices as high as 60@75¢ doz., it was possible to show a profit when the birds were in 25% production. But "those days are gone forever," he added.

Competition Increasing

With commercial egg production on the rise throughout the Southeast, Mr. Miller said that competition is increasing, even though Georgia producers are beginning to export eggs in eastern and midwestern markets.

"Buyers can be choosey," he said, "and we can lose customers mighty fast with a poor quality egg. Some of our customers have been with us from the start—but we keep on selling and keeping them sold. When we stop being salesmen, we might as well close down the farm."

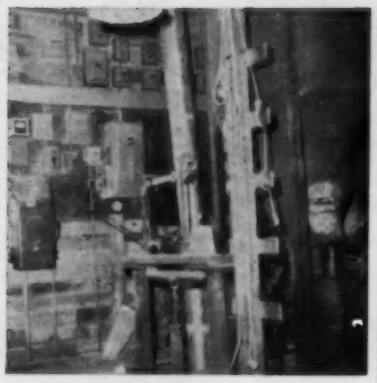
While his operation was considered to be "big scale" a few years ago, Mr. Miller said that many commercial flocks in the Southeast are larger



GRAIN STORAGE—Feed mill on Sid Miller poultry farm at Irwinton, Ga., has grain storage for 20,000 bu.

GATHERING EGGS—Eggs are gathered several times daily in wire baskets and are carried on conveyor to packing plant.

WEATHER CONDITIONED—Layer houses can be covered with plastic (left) during cold winter weather and can be ventilated (right) during hot, humid summers.



CONTROLS—Addition of antibiotics and medicants is facilitated at Irwinton, Ga., mill by controls and mixer.

—25,000 birds is just about "average."

Whether "average-size" or not, operating a 25,000-hen farm calls for peak efficiency and economy. Mr. Miller said that all costs are figured on an annual basis and include every factor involved—depreciation, taxes, labor.

"We don't try to fool ourselves. Some egg producers claim a lower cost than we do. Maybe so, but we know what volume of business we need to show a profit, and we operate accordingly."

He said that it is possible the flock could be increased without raising production costs very much, but selling the additional volume might lead to flooding the market or necessitating shipping eggs out of the state.

Feed Mill

Mechanical equipment is used everywhere, the largest single item being the feed mill.

Mr. Miller said he built the mill with equipment furnished and erected by a local supply house and it consists of a hammer mill, Kelly Duplex mixer, automatic scale, auger conveyors to each chicken house and storage bins for 20,000 bu. grain.

In addition to lowering his feed costs, Mr. Miller said his mill gives him more control of rations, and since each day's supplies are mixed as needed, he can adapt the formulas for each flock as needed. He is using Swisher concentrates and programs and said he could see no reason, at present, for attempting to build his own ration "from the ground up."

Another advantage of mixing his own feed, Mr. Miller said, is that he has complete control of his operation.

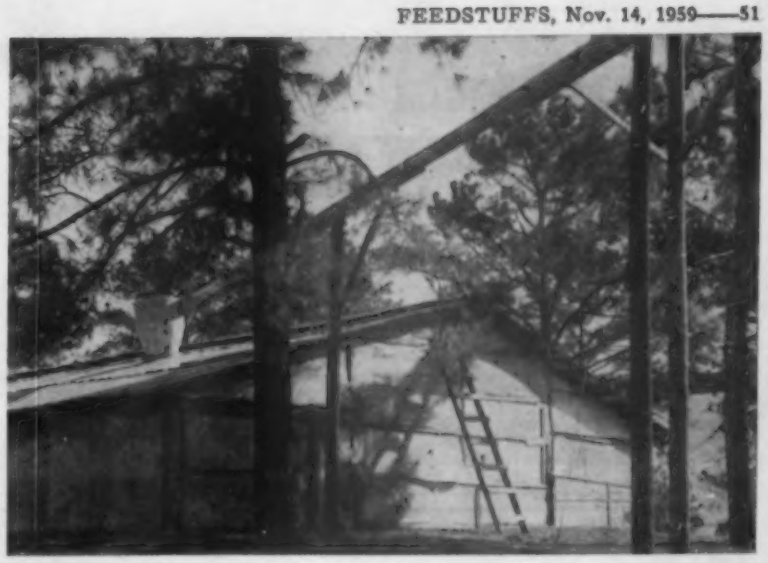
"Too many times a producer can lose control of the business, especially when he has to buy feed on credit."

First Layer House

Mr. Miller said that his "neighbors thought he was crazy" when he built his first chicken house 120 ft. long and 40 ft. wide.

"They weren't even building broiler houses that big in those days," he said. "We put 1,600 birds in that house—gave them plenty of room, lots of fresh air and good water. All the other houses are built with the same idea in mind."

Augers convey feed to each house from the mill, while eggs are gathered on an overhead lift in each house, with a "main line" running to the packing plant where the eggs are washed, candled, graded, packed and placed in the refrigerator. Deliv-



OVERHEAD CONVEYORS—Feed from Sid Miller's mill is "piped" through overhead conveyors to storage bins in each poultry house. Mechanical feeders take over from there.

FOR BULK FEED—This truck body was built to haul and handle bulk feed for replacement chickens growing on range.

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U.S.I. FEED NEWS

Vol. VI ★ A SERIES FOR SCIENTISTS AND EXECUTIVES OF THE FEED MANUFACTURING INDUSTRY ★ No. 7

Tests Indicate How Methionine Works To Relieve Stress

The value of DL-methionine in overcoming many stress conditions in animals is confirmed by recent work showing its therapeutic effect in treating human patients suffering from schizophrenia.

Use of methionine and rest showed the best effects on patients in early stages of the illness. The methionine treatment produced improvement in vascular reflexes, in nitrogen metabolism and in restoring normal liver functions.

Other studies indicate that methionine helps overcome stress in animals by the same pathways as certain tranquilizing drugs. Methionine derivatives are now being tested for tranquilizing humans. Similar results have already been shown with products such as reserpine for poultry as well as for humans.

These studies may help show the specific ways in which methionine acts to offset stress in animals or humans. Results may throw further light on the value of methionine for improving meat and egg production, for reducing feather picking, increasing resistance to heat and other stress conditions.

Low-Magnesium Diet Causes Calcification In Hearts of Calves

A below-optimum level of magnesium in the diet of calves produces bony deposits or calcification in the heart, large arteries and muscles. The incidence and severity of calcification are influenced by age and breed of calves as well as by the degree of magnesium deficiency. Utilization of magnesium from natural feeds and from magnesium salts has varied in different tests. This suggests feed men should consider the magnesium-calcium-phosphorous ratio in feed formulation.

Leading Fabricator of Quality Meats Prefers Beef Produced on MOREA® Feed

Asks Packers for Cattle Grown on This New Program

"We are constantly shopping for better beef, and we have found it in the meat from animals produced on the MOREA liquid feed program," says Mr. Ed Fudim, of Fudim Brothers in New York City. "As fabricators of choice and prime beef, we process some 500,000 pounds weekly, and have as customers many of the top-flight hotel and restaurant suppliers of the country.

Higher Quality—Less Waste

"We have been impressed with the beef from certain suppliers," says Mr. Fudim, "and find that these outstanding beef hinds are from steers produced on MOREA feed. These hinds hold their color, have better texture and require less trimming than hinds from other suppliers. We are enthusiastic about the yields obtained. Our customers, too, have been requesting 'more of the same.'

"As a result, we want to get in touch with growers and feeders who are using MOREA feed," adds Mr. Fudim, "so that we can channel our buying to packers handling that type of cattle."

Look to Reputation Feeders

As more cattle and lamb feeders use MOREA supplement, many meat packers are finding out for themselves the quality, flavor and good marbling of carcasses produced on this new liquid feed. A number of packers are also feeding MOREA supplement to animals in their own feedlots.

With dairy cattle, too, MOREA feed is valuable, both for increasing output of milk and butterfat and in cutting feed costs.

Opportunities for Feed Men

While MOREA liquid feed is now available to livestockmen coast-to-coast, certain areas are still open for mixer-distributors. Liquid handling, relatively low investment, simple inventory and large percentage of repeat sales make the MOREA feed supply business highly attractive. Firms who have a sales staff calling on farmers, and are capable of advising users on a balanced feed program, are ideally suited to become authorized MOREA feed mixer-distributors. For full information, write U.S.I. today.

The difference in meat quality is easy to see. The Choice strip loin at the left is from an animal fed an ordinary ration. There is more well-marbled meat and less waste fat in the loin at the right from an animal fed MOREA supplement, and the kidney ball of fat is much smaller.

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This year 'round, nation-wide demand—constantly stimulated by advertising in leading farm and poultry journals and on 70 radio stations—makes your selling job easier. It pays to push PILOT BRAND—the largest selling eggshell material in the world.

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eries are made daily to wholesale, retail and restaurant outlets.

Mr. Miller believes the egg industry will come out of the recent low markets, but added that "trouble may be ahead if we lose our marketing ambitions and wind up with prices controlled by large chain store buyers."

He was one of the charter members of the Georgia Egg Assn. and worked with the committees that brought about revisions in the Georgia egg grading law.

"When we got a good egg law in Georgia," Mr. Miller said, "we opened the door for opportunity for a sound industry. That's why so many other southern states are making revisions in their egg laws along the lines of Georgia's."

Maple Leaf Milling Reports 57% Higher Net Profit for Year

TORONTO — Maple Leaf Milling Co., Ltd., recently reported a consolidated net profit of $1,281,488, or $2.24 a common share for the year ended July 31, 1959. This is 57% above the previous year's net profit of $817,046, or $1.37 a share.

C. E. Soward, president, said that improved efficiency, higher domestic sales and favorable market conditions for both flour and manufactured feeds, together with a rising market for milling byproducts, all contributed to better results.

He pointed out that a definite improvement has been made, although results are still somewhat below the objective of 2¢ per sales dollar.

On the outlook, Mr. Soward said curtailment of export flour markets, less favorable outlook in the feed division and excessive competition in packaged goods all point to a less satisfactory current year. He said labor costs continue to rise out of all proportion to increased productivity.

An increase of $1,284,212 in working capital to $6,983,301 on July 31, reflects mainly the issue of $1 million worth of 5¼ general mortgage bonds. Capital expenditures were $1,006,131. Dividends totaled $355,492. Current assets of $23,398,228 are exclusive of shares in controlled bakeries having a market value of $2,007,000. Bank loans of $11,958,713 are included in current liabilities of $16,414,927.

Mr. Soward said, "A final step in the integration of Purity Flour Mills with our company was the consolidation on Feb. 1, 1959, of the manufactured feed business of both companies under a new subsidiary company called Pioneer-Cafeteria Feeds, Ltd. This is effecting substantial savings in manufacturing, selling and advertising expenses in the feed division.

"Progress in the sale of new combination brand, Pioneer-Cafeteria, has been excellent, and for the long term we consider, the prospects for growth in the feed business quite good. Unfortunately, there is a downward trend recently, due to a surplus production of hogs and poultry, and the outlook for the current year is rather clouded," he reported.

Maple Leaf earnings in the fiscal year ended July 31, 1959, reached the highest level since the 1946-48 postwar period of peak flour production.

Maple Leaf now manufactures and markets more than 200 individual products under various trade names. The firm also makes up many special formula feeds on custom order.

Part of a modernization and expansion program enabled the pelleting capacity of the Bridge Street, Montreal, plant to be doubled. A feed mixing plant in the Maritimes was purchased and remodeled.

INCORPORATED

FRANKFORT, KY.—Henry County Feed Supply Co., Louisville, has been incorporated to deal in feeds, with capitalization of $100,000.

NEW PUBLICATIONS—Three new publications are now available covering feed, animal and poultry nutrition research conducted by Chas. Pfizer & Co., Inc., and land-grant college scientists.

Pfizer Releases Reports on Pelleting, Tranquilizer, Lysine

TERRE HAUTE, IND.—Research findings in feed pelleting and in the feeding of amino acids and tranquilizers to farm animals are revealed in three new publications recently issued by Chas. Pfizer & Co., Inc.

Feed pelleting is now responsible for 56% of all manufactured feed processed in the United States, writes Robert C. Wornick, Pfizer chemical engineer, in a new lecture series bulletin released by the drug and chemical firm's agricultural research center. More than 22 million tons of pellets, crumbles and cubes were turned out in 1958, testifying to the growing importance of pelleting operations in modern feed manufacturing, reports Mr. Wornick.

Mr. Wornick's new booklet gives a comprehensive picture of the feed pelleting process and its effects on important micro-ingredients such as vitamins and antibiotics. The publication summarizes a presentation made by the Pfizer researcher as a program participant at the recent Feed Production School in Kansas City.

Animal nutritionists headquartered at the Pfizer Agricultural Research Center here also have issued a new bulletin summarizing research results with Tran-Q as a growth promoter for cattle and sheep. The publication reports findings from 21 cattle and 10 sheep trials to show that low levels of Tran-Q have increased average daily gains and feed efficiency in cattle by 8% and 7% respectively, and in sheep by 10% and 7%.

The third report, summarizing recent Ohio State University studies with turkeys, reveals "outstanding results with lysine fed as supplemental part of low protein growing rations." The Pfizer Data Report describes how Ohio State scientists found it was possible to replace some of the dietary protein in turkey rations with amino acids without sacrificing either rate of growth or feed efficiency.

Copies of the publications are now available. Persons may write for the publications entitled, "Lysine;" "Feed Pelleting and Its Effects on Micro-Ingredients;" and "Tran-Q in Rations of Beef Cattle and Sheep." They are available from the Information Department, Pfizer Agricultural Research Center, Terre Haute, Ind.

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There's None Better!

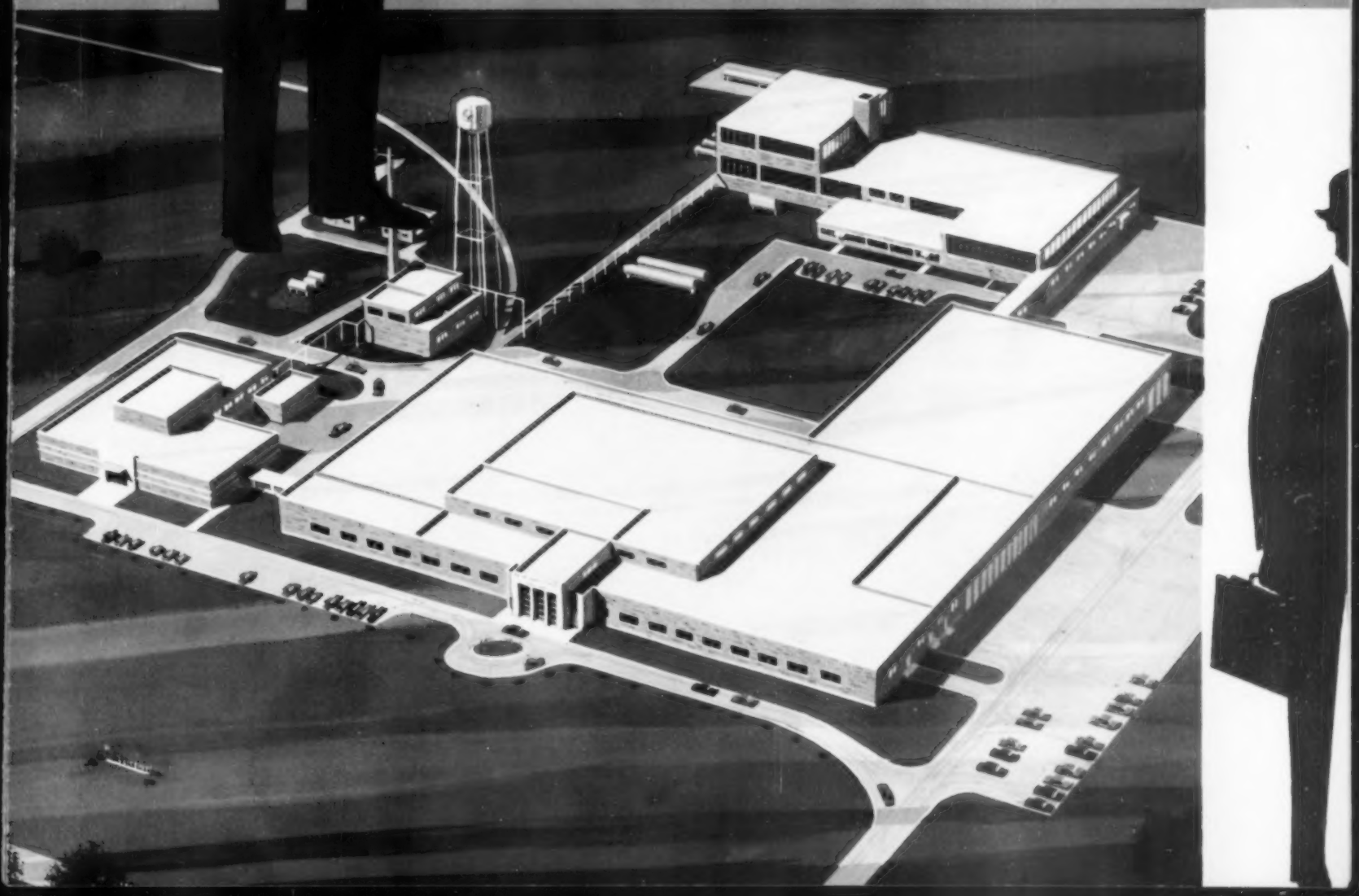
Now... and for the past 35 years!

Dr. SALSBURY'S EXPANDING SERVICE to the Feed and Poultry Industry

Disease is the greatest single threat to profitable poultry and livestock production today. And disease problems are steadily becoming more complex, thus making new demands on your feeds. All this calls for more service, more co-operation between the laboratory and the field—for it is in the laboratory that the answers to many field problems must first be found.

Over the years, Dr. Salsbury's Laboratories have developed several outstanding feed-additive health products—also the field manpower to help assure their proper application.

This brochure describes briefly certain of those services available to our many friends in the feed industry.



ONE OF THESE 78 EXPERIENCED

is your contact

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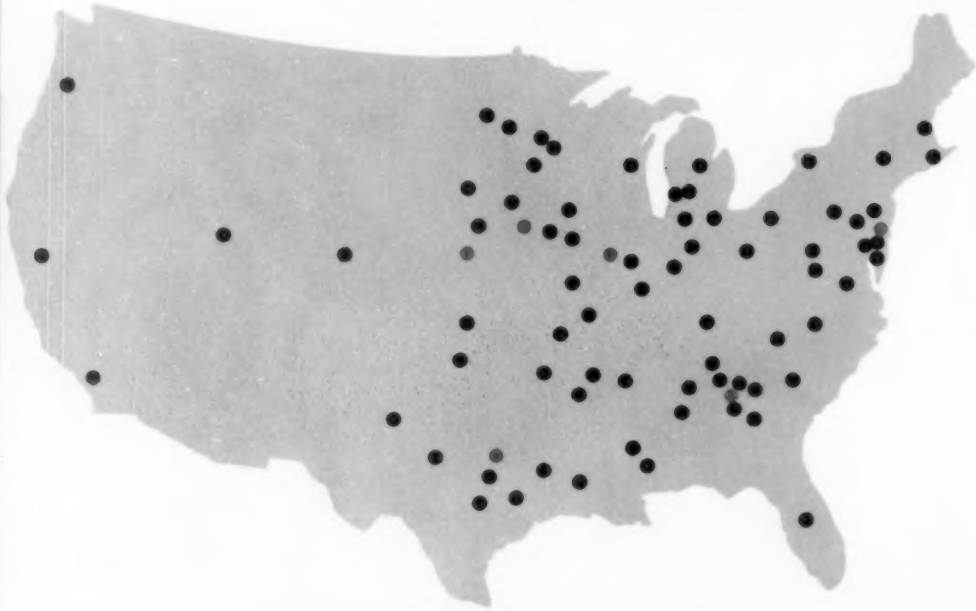

He's close by...to help you

The 78 Territory and District Managers shown here average 12 years of experience with Dr. Salsbury, working first-hand with feed manufacturers, poultrymen and dealers. One of them is assigned to your territory. Contact him, at the address nearest you.

Your Dr. Salsbury's representative is a walking encyclopedia of practical information about poultry and feed medication. He can provide the advice you often need regarding disease and programs of prevention and control. He keeps informed on industry problems, and can help in the training of your staff, through on-the-farm service calls, and even with feed merchandising programs. In short, he can

H. M. LIGHTBODY, Dalton, Ga. · W. D. LIPSEY, Lubbock, Tex. · E. W. MARSH, Marion, Ind. · J. J. MAYFIELD, Richmond, Va. · W. J. MOSTOLLER, Hampton, N. H. · J. H. MURDY, Fort Collins, Colo. · W. C. MYERS, Fayetteville, Ark. · R. W. O'DONNELL, Flora, Ill. · H. C. PARK, Des Moines, Ia.

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THESE MEN REPRESENT 975 YEARS OF TRAINING

MEN
with Dr. Salsbury's Laboratories

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H. O. FISHER, West Columbia, S. C. · A. R. FRANK, Fargo, N. Dak. · C. G. FRY, Cedar Falls, Iowa · G. M. FULKS, Lancaster, O. · G. D. GILBERT, Rosemead, Calif. · K. J. GLEASON, Wareham, Mass. · R. S. HEASLEY, Alta, Mich. · E. O. HELGEN, Decatur, Ill. · C. E. HUTSON, Chattanooga, Tenn. · J. H. ISAACS, Lincoln, Del.

with your feed-medication problems

do everything that normally needs to be done with respect to adding medications to feed—and making your good feeds work better under field conditions.

One of the most valuable functions of the Dr. Salsbury Territory Manager is that of middle-man between the field and laboratory. He represents you to us—and the other way around. He is your key to all the valuable services of the entire Dr. Salsbury organization. Most of the services discussed in this brochure are available through the Territory Manager.

Six Dr. Salsbury District Managers can offer you much the same kind of help . . . and back up the service of the Territory Manager near you. Your Dr. Salsbury representative is a good man to know. Through him, Dr. Salsbury's "Scientific approach to poultry and swine health problems" offers real help to you and your feed customers. Use his talents—and those of others available through him—to make your business more successful, more profitable.

ROY JOHNSON, Austin, Tex. · F. G. KEAN, Warren, O. · J. P. KOOISTRA, Mankato, Minn. · M. L. LAING, Alexandria, La.

H. A. LAMPHERE, Minneapolis, Minn. · E. T. LANDING, Orlando, Fla. · L. R. LANGLEY, Greensboro, N. C. · D. G. LEHN, Springfield, Mo.

J. V. ROGERS, Lyndonville, N. Y. · T. C. ROTHBAUER, Yardley, Pa. · F. H. RUNCHEY, Goshen, Ind. · AL RUPP, Wauseon, O. · C. G. SALSBURY, Bloomington, Ind.

C. B. WALLS, Easton, Md. · J. W. WALTER, Athens, Ga. · J. C. WILLIAMS, Waco, Tex. · D. P. WILLIAMSON, Laurel, Miss. · L. C. WINTER, Murray, Utah

These District Managers Co-ordinate Territory Manager Services

D. W. CUMMINS, Atlanta, Ga. · W. H. HAZEN, Sea Girt, N. J. · V. I. HELGEN, Morton, Ill.

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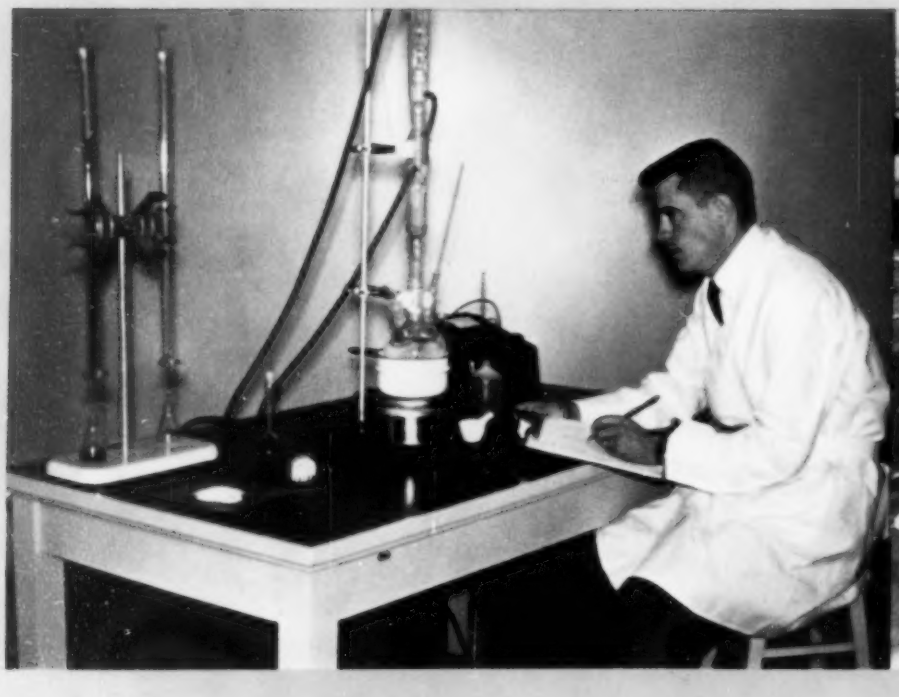
AND FIELD EXPERIENCE WITH DR. SALSBURY'S ALONE

THESE RESEARCH SERVICES CAN

Poultry and Swine Health Specialists

Research is the starting point, the launching pad for all progress in the field of poultry and livestock health. Research in feed medication requires both highly trained specialists and the very best facilities. Our large staff includes chemists, bacteriologists, biochemists, protozoologists, virologists, parasitologists and pathologists, all working closely with poultry and swine disease problems in the laboratory and in the field. These men are recognized as top scientists. They are members of a research team that has made signal contributions to agriculture through the development of new, more effective feed additives and other health products. Keenly aware of the need for feed-medication programs that work in the field, Dr. Salsbury's specialists are at your service with quality product research.

For these scientists to carry out their experimental work, they need not only the most advanced laboratory equipment but practical testing facilities as well—where typical farm conditions can be simulated. Dr. Salsbury's Research Farm — where modern broiler, layer, and turkey houses are located—is typical of the experimental facilities of the Laboratories. Here, many different flocks and thousands of birds of all ages are being constantly tested for effectiveness of treatments and practical methods of application.

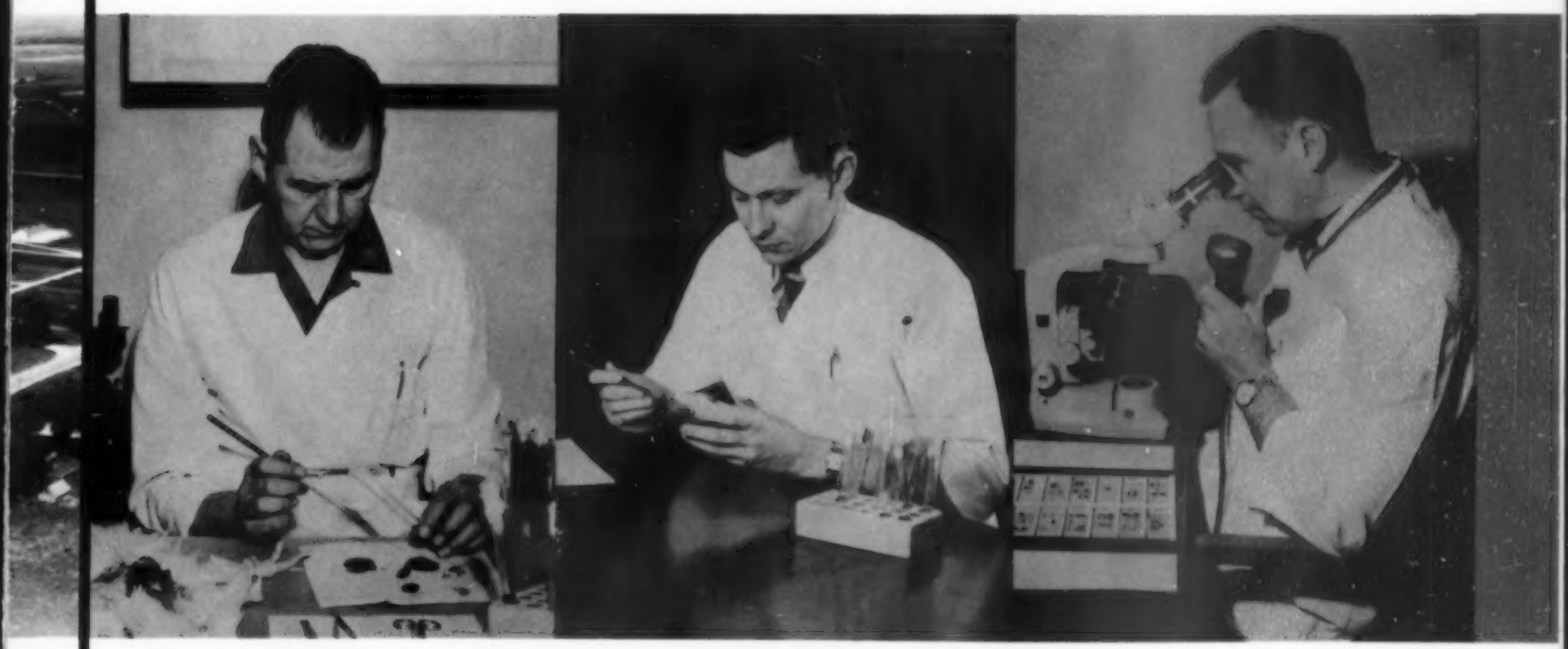


Dr. Salsbury's Laboratories–the Scientific

HELP SOLVE MANY OF YOUR FEED PROBLEMS

Professional Diagnostic Service

Many flock troubles can be solved in the field, with the assistance of your Dr. Salsbury's Territory Manager, but when problems arise that require professional scientific advice, he will be the first to propose submitting specimen birds to a diagnostic laboratory. He knows guesswork can be costly—to you, your feed dealers or customers. Dr. Salsbury's diagnostic facilities are widely used by all segments of the industry. Feed manufacturers, dealers and fieldmen, as well as college laboratories, experiment stations and local poultry producers, annually send thousands of cases to Dr. Salsbury's Department of Veterinary Pathology. This department, using a number of modern techniques, provides a complete diagnostic service. This important service seeks to find the underlying cause of disease in a flock, so that steps may be taken to control immediate mortality and to establish a program of prevention. This service is, of course, supplementary to state diagnostic laboratories; both are doing essential work for the good of the poultry industry. Complete details and information on how to use Dr. Salsbury's diagnostic and other scientific services may be obtained from your Territory Manager.



Approach to Poultry and Swine Health Problems

EDUCATIONAL SERVICES AVAILABLE TO YOU...

Poultry Short Course

Today, more than ever, disease is a major threat to poultry profits. The average poultryman is beset with complex conditions requiring careful study and sound advice. He needs help. And he expects his poultry feed to do a lot more than provide the essential nutrients for growth. You can provide a large measure of the help he needs—by building a better feed and servicing your customers with trained, capable fieldmen.

Dr. Salsbury's Poultry Short Course provides an intensive, practical kind of training in how best to prevent and control poultry diseases. It is widely popular and highly respected. To date, over 10,000 dealers, field servicemen and poultrymen from every state, and many foreign countries, have taken the course during the 25 years it has been held. While attending the 4-day course, students "learn to do by doing." They do laboratory work, post-mortem examinations, blood testing, vaccinating, and other such work with poultry. Every modern teaching technique is used to give the student a chance to see for himself many of the disease conditions encountered in the field, so he will be better able to cope with them later.
To find out more about Dr. Salsbury's Poultry Short Course, contact your Territory Manager. Or, write direct to Charles City.

Field Symposiums

These are group meetings, held in various areas. They are similar in purpose to the Short Course, except they are more accelerated and characterized by discussions of disease conditions, presented by experts in their respective fields. Many meetings are held in co-operation with other groups such as the Extension Service, poultry improvement associations and the like. Every year sees an increase in the number of field meetings held for the purpose of training the salesmen or fieldmen of feed companies and dealers.

TECHNICAL SERVICE ADVISERS ARE SPECIALISTS IN FEED MEDICATION

These men, who are trained specialists experienced in feed medication and poultry disease control, are available through your Dr. Salsbury's Territory Manager or direct from Charles City. They can give you most up-to-date advice and help, because they are in constant touch with college researchers, industry specialists, and practicing veterinarians. They work closely with local people, especially veterinarians.

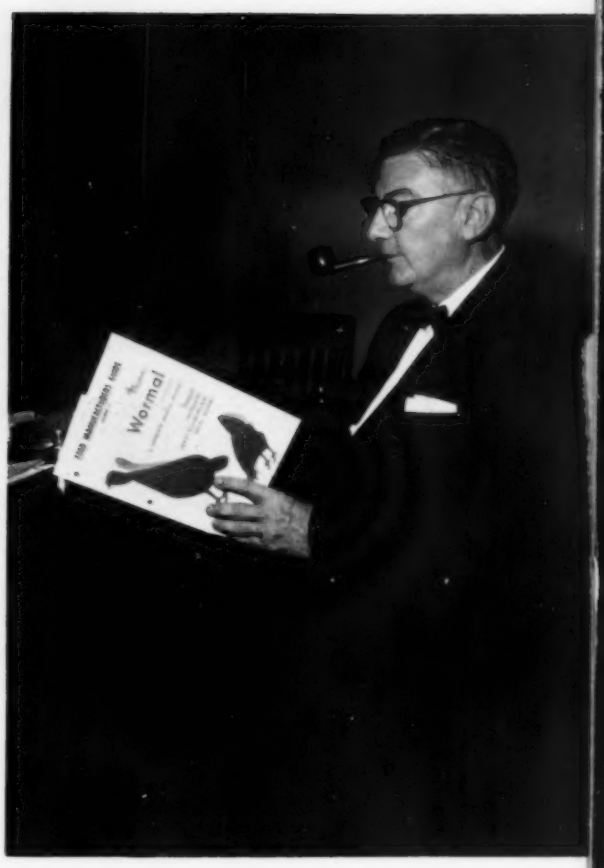
Dr. Salsbury's Technical Service Advisers can help you and your growers develop effective disease-control programs—through medicated feed. They're also available to you as trouble-shooters. They can be at the trouble spot in a matter of hours. And they bring the entire technical resources and know-how of Dr. Salsbury's Laboratories to your aid.

Make full use of Dr. Salsbury's Technical Service Advisers. Their help means the use of professional skill and facilities that are vital, yet lacking in many places.

Feed Analysis

For a feed medicant to do its work, the additive must be mixed thoroughly throughout the batch, so that any given portion of the feed eaten by the birds will contain the correct dosage. Otherwise, one bird might get more medication than necessary, while another one fails to get enough for full protection. The only way you can be sure of optimum distribution of the medicant throughout the feed is to follow mixing directions to the letter. Then have random samples analyzed. We can do this for you—if you have no chemist or if you want your own analyses checked by an outside laboratory. Of necessity, however, the number of feed analyses we can make is limited. Please check with your Dr. Salsbury Territory Manager and let him make arrangements for you.

SCIENTIFIC INFORMATION
that helps you and your staff keep up with industry changes



Agriculture is dynamic, ever-changing. This is especially true of the field of poultry health and medication. As a result, many feed manufacturers and dealers find themselves hard-pressed for time to keep abreast of these many changes. One way to do this is to take advantage of Dr. Salsbury's scientific information service.

An extensive series of Feed Manufacturer's Guides, research bulletins and reports covering practically every phase of poultry health and feed medication, will be sent to you regularly at your request. These materials are all designed to meet the needs of feed manufacturers and dealers as the latter give dependable information and service to their feed customers. Disease manuals and guides can be of great value to your field servicemen as they seek to bring more effective service programs to the users of your feed.

See your Territory Manager or write direct, asking that your name be put on the mailing list so you, too, can get this scientific information regularly.

Please write, wire or phone for further information about any particular service mentioned in this brochure. Or, if you are interested in some service not mentioned here, please ask about that also. We will do our best to take care of your request.

Remember to contact your Dr. Salsbury's Territory Manager. He can be most helpful to you in many ways. A majority of the services discussed herein are available direct from Charles City; in most cases, however, we recommend that you contact your Territory Manager first and let him make the arrangements. Make him your "Partner in Service." It is his business to help you—and to help make your own business more profitable.

Dr. SALSBURY'S LABORATORIES
Charles City, Iowa

NATIONWIDE SERVICE TO THE FEED INDUSTRY

Potential of Midwest in Egg Production Stressed at Nebraska Poultry Meeting

LINCOLN, NEB.—"The Midwest area is a 'sleeping giant' with tremendous potential and will use this strength to produce a large percentage of the nation's top quality eggs," Prof. Tom Avery told the Nebraska Poultry Improvement Assn. at its annual convention held here recently.

Prof. Avery, head of the Kansas State Poultry Department, further emphasized the need to keep the consumer better informed on the nutrition value of eggs.

A panel discussion moderated by John Skinner, extension poultryman, University of Nebraska, emphasized the trend toward large and more efficient units in the Midwest.

The panel pointed out that in the future fewer people will be doing "a bigger job better." Also brought out was the increasing awareness of each segment of the industry for the problems and welfare of other industry interests. All members agreed that advances would come by concerted and collective action by all members of the industry.

Producers were told that the Midwest was the largest surplus egg producing area of the nation by Leonard Z. Eggleton, extension marketing specialist, Iowa State University, Ames, Iowa. Mr. Eggleton further stated that 58% of the eggs moving into the New York area came from the midwestern area. In discussing the future of the egg production market, Mr. Eggleton said, "The consumer is the person who will dictate what is sold by acceptance of our product with the housewife holding the key as to the color, size and type of egg she desires."

Dr. Bill Jasper, assistant director, commodity division, American Farm Bureau Federation, Chicago, Ill., told producers that they must aim at new goals. Nebraska producers will have to compete on about an equal basis with poultrymen in other areas of the country in order for their layers to return a profit.

A panel moderated by Dr. John Adams, chairman of the poultry husbandry department, University of Nebraska, emphasized the need for efficiency in utilization of floor space, feed and egg handling equipment.

One of the problems which arise in systems housing a bird to 1½ sq. ft. of space is the tendency to produce dirty eggs, it was stated. A full discussion of the pros and cons of cleaning eggs followed. It was agreed that slightly soiled eggs could be washed without harming their quality if it was done properly.

Elmer Roth, vice president and general sales manager, Honeggers' & Co., Inc., Fairbury, Ill., declared that the midwest area has more natural advantages than any other region and urged hatcheries and other industrymen to "wake up to the real possibilities of the future by establishing an aggressive service and sales program."

Dr. Thomas Sullivan, nutritionist with the poultry department, University of Nebraska, pointed out the lack of fundamental information on the mineral requirements of turkeys at various ages and stages of development. He told possible reasons for this and showed slides on results of mineral work he is doing.

Robert Tyler, field service representative of Quaker Oats Co., Fort Dodge, Iowa, gave an illustrated talk on the desirable and undesirable management conditions he has observed in his work. Mr. Tyler cited the costs and returns from turkey breeder flocks and pointed out the rapid increase in this segment of the industry in Iowa.

Sam Moore, coordinator for the National Poultry Improvement Plan, Washington, D.C., stressed the need for complete eradication of pullorum and other egg-transmitted diseases.

Richard Fleming, assistant extension editor, University of Nebraska, Lincoln, stated that a farmer should not be underestimated. Hatcheries and dealers should recognize the knowledge of past experience of the people with whom they deal, he said. He further emphasized the need for making use of research information available at the state institutions and developing a sound sales and service program.

Recognition was given to 36 hatcheries that have been in existence for 25 years or longer. Special recognition was given to Mr. and Mrs. Clarence Zucker, Mr. and Mrs. George Oberg and Mr. and Mrs. D. R. Spieker, whose combined hatchery service exceeded 101 years.

Donald Clabaugh, Columbus Hatchery, Columbus, Nebraska, was named president of the association. Dorle Hays, Hays Hatchery, Cozad, Neb., was named first vice president. Lloyd Parr, Sure Hatchery, Broken Bow, Neb., was elected second vice president. Melvin Brown, Colonial Poultry Farms, Inc., Lexington, Neb., was elected treasurer. Doyle H. Free was retained as the executive secretary. Past President Arnold Daniel, Fremont Hatchery, Fremont, Neb., and Roy Brown, Gaydou-Brown Hatchery, Blair, Neb., continue as executive committeemen.

W. S. Woodward, Leigh Hatchery, Leigh, Neb., was elected director at large for a three-year term. Roy Brown, Gaydou-Brown Hatchery, Blair, Neb., was retained as American Poultry & Hatchery Federation director.

Heads Kentucky Group

LEXINGTON, KY.—William Dennis, Glasgow, was elected president of the Kentucky Poultry Federation to succeed Ralph McManigal. Other officers elected were: Charles W. Berryman, Winchester, vice president, succeeding I. R. Staples, and E. C. Hogg, Berea, secretary-treasurer, succeeding W. R. Brooks. At the same meeting R. E. Kelley, Murray, and William Botkin, Berea, were named president and vice president, respectively, of the Kentucky Poultry Improvement Assn.

ASSOCIATE PROFESSOR

DURHAM, N.H.—Gerald L. Smith has been named associate profsesor of animal science at the University of New Hampshire here, according to Eldon L. Johnson, president.

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HERE'S WHY . . . The Daffin Method of Mobile Milling sells more feed, makes more profit (for both the Daffin Feedmobile owner and his farm customers) and builds more good will than any other type of feed processing or bulk delivery service you can offer!

What's more, to top off its profit-making potential, the economy-engineered Daffin will return value to you many times over in quality construction, low-cost maintenance and in new labor-saving conveniences.

Satisfied owners will tell you: If you're going into a Farm Feed Service, go into Mobile Milling, and "DECIDE ON DAFFIN NOW". Sooner or later you'll wish you had!

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Builders of the World-Famous Daffin Packaged Feed Plants, Pneumatic Conveying Systems, Pelleting Machines, Batch Mixers

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DAFFIN MANUFACTURING COMPANY, 3294 NORTH PRINCE STREET, LANCASTER, PENNSYLVANIA

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

GRAIN BANK OPERATION

By Dr. W. S. Farris
Agricultural Economics Department
Purdue University

Advantages
Problems
Facilities
Policies
Agreements
Charges

EDITOR'S NOTE: The accompanying article was presented recently as a talk at the Michigan Feed & Grain Assn. conference. The author covers various aspects of grain bank operations. Much of the information is based on a survey of grain and feed handlers in Indiana.

The grain bank is being used widely by feed dealers and farmers throughout the state of Indiana. The grain bank basically is an arrangement between the dealer and the feeder whereby the feeder stores various amounts of corn with the dealer and later withdraws an equivalent amount of corn in the form of mixed feed. In some instances the arrangements include oats.

GRAIN BANK ADVANTAGES— Probably the most important advantage to the farmer is that the grain bank saves time for him. This is especially true in hog feeding operations where feed is placed in the hog feeders when delivered. The corn is handled but one time. One Indiana hog producer who uses this grain bank arrangement had more than 900 man-work units per man on his farm. This is about three times the man-work units accomplished per man on most central Indiana farms. The manager attributes a large part of the efficiency in his farm operation to the use of the grain bank.

Convenience is another important advantage of the grain bank system. It allows the farmer to use days not otherwise available for productive farm operations to transport corn to the feed mill. Corn can be hauled to the mill at irregular intervals but feed must be mixed more or less regularly. On the other hand, to get feed delivered to his farm he needs simply to make a telephone call.

An advantage in storage can sometimes be gained by using the grain bank plan. This may be especially true for farmers whose grain storage facilities are in need of being replaced. A good part of their grain storage can be shifted to the local elevator and feed mill rather than to construct additional storage on the farm. This arrangement permits funds to be used as operating capital rather than being tied up in fixed facilities.

GRAIN BANK PROBLEMS — Livestock producers face several problems, in addition to paying for the services rendered, when they use the grain bank.

- Feeders must be large enough to accommodate sizeable loads of feed.
- The likelihood of disease being brought to the farm is increased.
- The producer will need to plan his feed procurement needs in advance.
- It is impractical to preserve the identity of corn deposited in the grain bank.

A recent survey by Purdue University revealed that approximately half (378) of the grain and feed handlers in the state have some type of a grain bank arrangement. The grain bank seems to be most ppoular with hog feeders. Of 13,528 grain bank customers,

53% used it for hogs
26% used it for laying hens
10% used it for beef cattle
9% used it for dairy cattle
2% used it for broilers and turkeys

Some of the highlights of the survey are presented under the four following questions:

1. What facilities and agreements are generally associated with the grain bank?

Some grain bank operations have been set up with little change in existing facilities and handling methods. The setting up of other grain bank operations has included considerable modification of grain storage, bulk supplement and mixed feed storage, and feed grinding and mixing equipment. Limited storage space is a problem to dealers using the grain bank. Out of 378 dealers using the grain bank:

76% restrict the size of deliveries of corn.
56% restrict total corn stored by each farmer.
65% keep an inventory of corn on hand to meet grain bank obligations.

It appears, therefore, that dealers make an effort to restrict the rate at which farmers bring corn to them for storage, probably because of limited storage facilities and, at the same time, generally feel their obligation to keep enough corn on hand to take care of current obligations under their grain bank agreements. Of the dealers who did not try to keep an inventory of corn equal to grain bank obligations, the majority relied upon local purchases of corn to fill these needs. Even though the storage problem seems to be an important one, only 22% of the dealers reporting a grain bank operation made a direct charge for storage.

2. What are the important problems connected with receiving grain from farmers in grain bank arrangements?

In crediting the farmer with grain deposited in the grain bank the most popular method appeared to be that of giving him credit in terms of pounds of corn. About three fourths of the dealers made a moisture adjustment for corn received in the grain bank. Nearly half of these made adjustments for quality other than moisture and about a third of them made an additional adjustment for shrink.

Several methods of adjusting for moisture were reported but the most common one appeared to be that of adjusting to 15½% moisture basis. Thus, many dealers using the grain bank apparently make no adjustment for moisture, simply returning corn for corn and reasoning that the variations will average out. Only a very small percentage of the dealers reported that they credited the farmer for his corn on a dollar basis.

Only about a third of the dealers who have grain bank operations have grain dryers for use in connection with handling corn containing high moisture.

3. What specific agreements are used in grain bank operations?

In grain bank arrangements it is generally understood that the feeder will keep corn deposited with the dealer so that he has some on deposit for most of the feeding year. It is also generally agreed that corn withdrawn from the grain bank will be in the form of mixed feed and that the mixing and grinding services and supplements added will be furnished by the dealer.

However, of the dealers throughout the state reporting that they had some type of grain bank operations, less than 10% of them had written contracts with the farmers. A large percentage of the dealers had understandings with the farmers regarding the maximum corn that could be deposited in the grain bank, but only a very small fraction reported announcing a minimum which they would receive from the farmer.

The understanding with the feeder, whether written or unwritten, usually involves (1) the rate for converting ear corn to shelled corn, (2) the moisture adjustment schedule, (3) adjustment for shrink and other quality adjustments, (4) the policy on overdrawing the corn account, and

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Says J. M. Munguia
J. M. Munguia & Son, Nogales, Arizona

"We use our Brower Mixer to make our own brand of feeds, and estimate 15% gain in feed profits. We also do custom mixing, and the number of customers we serve has increased about 30%. Before we got our Brower Mixer we were unable to handle any large tonnage; now we handle orders of any size and get them out on time. The mixer operation has been very satisfactory — no trouble of any kind. Very economical to operate, it turns out capacity tonnage at a very low power cost."

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- A size for every need — 700, 1200, 2000, 3000 and 4000 lbs. per batch capacities . . . above-floor and below-floor models.
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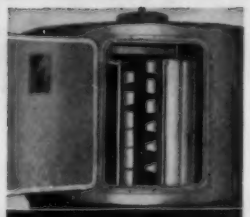

Interior easily reached through large hinged service door and hinged conveyor sleeve.

Mixing paddle at top WHIRLS ingredients for thorough, even mixtures.

Glass observation window at eye level provides easy inspection of feed being mixed.

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(5) the charges made for services in connection with the grain bank.

Several methods were set forth for satisfying an overdrawn corn account. The customer generally had the privilege of replacing the corn within a limited period at no penalty. However, a common understanding was that overdrawn accounts after certain dates would be charged at the retail price for corn.

As a service to the farmer many dealers keep a record of mixes desired by individual customers and allow them to place orders by telephone and either pick up the mixed feed at the mill or have it delivered to the farm. About 70% of those reporting grain bank operations kept such a record of mixes, and slightly more than one fourth reported that the majority of the feed orders at their mill were placed by telephone.

4. How do dealers charge for services they render under grain bank operations?

a. Storage. Since only about a fifth of the dealers reporting grain bank operations indicated that they charged for storage it appears that the majority of dealers make no direct charge for storage as such. Those reporting storage charges indicated that the most common was 1½¢ bu. per month. This applied to more than half of the dealers reporting storage charges. Several of the dealers made this charge after the first or second month. About one sixth of those dealers reporting a charge for storage listed it as 1¢ bu. per month.

b. Drying. Charges of 5¢ and 10¢ bu. for drying were the most common charges. The reported charges for drying however ranged from 4 to 12¢ bu.

c. Shelling. Shelling charges ranged from 2¢ bu. to 20¢ bu., with the most common charges being 2, 3, 4 and 5¢ bu.

d. Grinding and Mixing. The most common grinding and mixing charges were 10¢ cwt., 12¢ cwt. and 15¢ cwt. Of nearly 300 dealers reporting grinding and mixing charges, 75% reported charges within the 10-15¢ cwt. range.

e. Hauling. Usual charge for hauling farmers' corn to the elevator was 5¢ bu.

f. Delivery. Slightly more than half the dealers who reported having grain bank operations owned bulk delivery trucks. Charges for delivery of mixed feed varied considerably, but the most common charge was $2 ton.

SPECIFIC GRAIN BANK PROBLEMS:

Storage Space: Many elevator managers suggest that limited space is their main problem. This requires that they put some type of limitation upon the size of deliveries of corn by the farmer and upon the maximum amount which he can store with them. Some elevators will not accept corn for storage after certain specified dates because of the need for storage space for approaching new crops.

Over-Drawing Corn Account: Farmers are prone to over-draw their corn accounts especially late in the season, and some hope to repay the over-draft by furnishing new corn. When this occurs, it generally means that the elevator is then furnishing corn that is higher priced than the corn which it will receive in return after harvest. This problem is generally handled by establishing a policy of notifying the farmer when he is over-drawn and then allowing a short period of time (10-15 days) to make sufficient deposits of corn to cover the over-draft.

Quality Problems: Corn delivered for deposit in the grain bank is frequently not of storable quality. Such corn must be processed and fed within a relatively short time, sold at a discount and replaced, or artificially dried before storing. Since farmers usually expect good quality corn in the processed feed, the elevator must provide the replacement or drying service.

Receiving high-moisture corn necessitates the application of appropriate discount schedules in arriving at the proper credit allowed to the farmer. Also, if the farmer agrees to use high-moisture corn in his processed feed, then credit is usually allowed according to the same schedule at which the high-moisture corn is discounted.

Observations: Even though many problems are connected with the offering of grain bank services, it is apparent that many farmers are willing to use these services and to pay for them.

The elevator manager has a responsibility to help the farmer understand the problems connected with grain bank services as well as to inform him of the advantages of using them.

When the elevator manager does a good job of educating farmers in his community about the grain bank, he will likely see an improvement in farmer cooperation as well as increased use of, and satisfaction with, grain bank services. Even though the purchaser of goods or services wants them at the lowest possible cost, he is usually willing to pay a charge which is in line with the amount of services rendered.

New Storage Unit

CHINO, CAL.—A building permit to construct a $74,000 automatic bulk plant and storage unit has been taken out by Chino Grain and Milling Co.

Grain On Hand Eligible For Tax in Ohio in 1961

WORTHINGTON, OHIO — All grain on hand for manufacturing purposes in any feed and grain establishment in Ohio becomes eligible for personal property tax in 1961, according to the Ohio Grain & Feed Dealers Association, Inc., bulletin.

Inventories of those engaged in manufacturing are no longer exempt from personal property tax on 50% of their average monthly grain inventory used in manufacturing effective Jan. 1, 1960.

The Ohio association is trying to decide how the inventory to be taxed could be determined in an elevator with its multi-operational functions. Stanley Bowers, tax commissioner in Ohio, is co-operating with leaders of the trade to determine the feasibility of such a personal property tax, according to the association.

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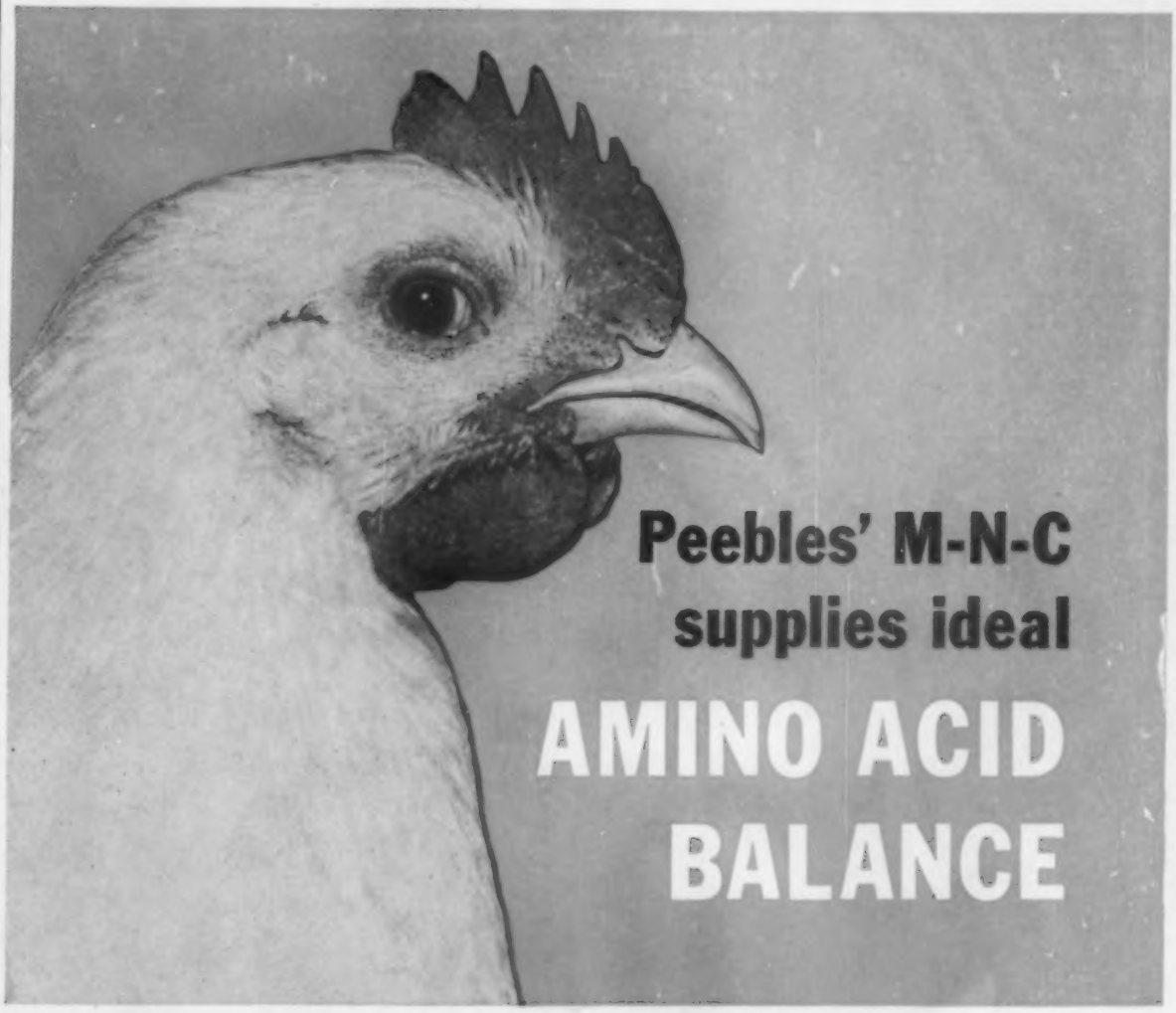

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CHAIRMAN OF THE BOARD

October 23, 1959

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President
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Dear Charles:

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Our reason is purely selfish for Stonemo helps us reduce broiler production costs many ways. We have accumulated ample evidence over the years that Stonemo does help our birds grind out more weight per pound of feed used, and good feed conversion is what we're looking for.

We have no health or poor growth problem due to gizzard clogging from intake of feathers, litter or fiber. Feeding your grit also reduces considerably the feather pulling habit of broilers. With Stonemo Granite Grit we have fewer barebacks and downgrades coming into our processing plant.

Frankly, we keep Stonemo on our payroll year after year because it pays us to do so.

Sincerely yours,

Jesse Jewell

STONEMO GRANITE GRIT

The grit with the "EXTRA GRINDING SURFACES"

we have fewer barebacks and downgrades"

says

Jesse D. Jewell

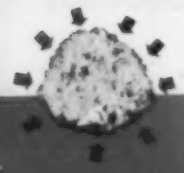
Board Chairman of the world's largest integrated broiler operation.

If feather pulling and barebacks are costing you money at marketing time, it will pay you to read about Jesse Jewell's experience with Stonemo.

Stonemo Granite Grit – Research Proved and Industry Approved – should be on your payroll, too!

Jesse D. Jewell, above, inspects healthy gizzards, free from feathers and litter, so necessary for a good digestive system.

Section of an eviscerating line in the Jesse Jewell processing plant that handles 6,000 broilers an hour.



Grower
Stonemo Granite Grit
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STONE MOUNTAIN GRIT COMPANY, INC., LITHONIA, GEORGIA

Interpretation and Enforcement Of Additive Regulations

By D. L. Bruner
Animal Health Institute

EDITOR'S NOTE: In a talk presented at the recent convention in Washington of the Association of American Feed Control Officials, D. L. Bruner, executive secretary, Animal Health Institute, described the organization, activities and objectives of the institute and discussed Food and Drug administration controls and their effects on feed additives. Excerpts from his presentation appeared as part of a roundup of AAFCO convention talks published in the Oct. 17 issue of Feedstuffs. The accompanying article starting also is from Mr. Bruner's AAFCO talk. In this article, Mr. Bruner discusses questions in connection with the Food Additives Law. Conclusions expressed are based on AHI committee work and reports.

ITEMS:

1. **"Prior Sanction"**—How is the FDA interpreting Section 201 (s) (3) which pertains to substances used in accordance with sanction or approval granted prior to the enactment of the Food Additives Law? Are the so-called non "new drugs" actually exempt from the operation of the new law? If so, under what conditions do the non "new drugs" lose that status and become "new drugs" and "food additives"? If the products are exempt from the law, how will the entire drug file jacket be affected if a drug manufacturer submits a new claim, new dosage level, etc.?

2. **Difference Between Veterinary Drugs and Food Additives**—When are single dose or therapeutic veterinary products considered veterinary drugs and when are they considered food additives? When they are considered food additives and a zero tolerance is established, is it necessary to develop a practical analytical method?

3. **Combination of Drugs**—What type and amount of data will be required when two or more drugs (feed additives) are used in combination in an animal feed?

4. **Metabolites and Conversion Products**—Assuming that a feed additive metabolizes and further assuming that long-term dietary studies are required, will these dietary studies be conducted utilizing the actual product or the conversion products?

5. **"De minimis" Theory and Tissue Residues**—When it is determined that the amount of drug residue that remains in the tissue is so minute as to be insignificant, should not the FDA apply the "de minimis" theory to food additives, through informal administrative interpretation as it has in administration of the Miller Amendment, which covers food additives classified as pesticides for plants.

DISCUSSION:

1. **"Prior Sanction"**—Until recently, any direct interpretations or formal statements of policy in regard to this section were conspicuous by their absence. At an informal conference of AHI representaatives with FDA's Arthur A. Checchi on Sept. 1, the following current FDA thinking on certain broad categories of veterinary drugs and feed-mix materials was disclosed:

(1) Old Veterinary Drugs, previously cleared under the New Drug Application procedure and later switched from "new" to "old" status, will probably be regarded by FDA as "generally recognized as safe" and therefore excluded from food additive control when used in the identical manner cleared by the original NDA.

(2) NDA Veterinary Drugs, presently covered by effective New Drug Applications, are also outside the food additive control area for the present because FDA regards them as covered by the "prior sanction" provision of the new food additive law.

(3) New Veterinary Drugs, being marketed for the first time and not previously cleared through the NDA procedure for veterinary use, will be controlled either as "new drugs" or "food additives" or both, depending on the circumstances.

A New Veterinary Drug to be mixed in animal feed or water is automatically a feed additive. Injectibles and implants used for economic purposes generally will be considered food additives if they leave residues. Used therapeutically, injectibles and implants will be controlled by NDA if FDA considers it reasonable to expect that no residues or conversion products will remain in meat, milk or eggs used for human consumption.

One of the governing considerations will be the length of withdrawal time necessary to eliminate residues before the animal's food products can be used for human consumption.

New Veterinary Drugs will be brought under food additive control when residue problems exist. If FDA believes residue problems exist, it will insist on food additive petitions, zero or safe tolerances and adequate assay methods for enforcement purposes against animal products.

NDA Veterinary Drugs are outside food additive control only for specific manufacturers who hold an NDA or Supplement for them and only when those drugs are marketed in conformance with the terms authorized in the NDA or Supplement. If "carcinogens" are involved, products having "old drug" status are probably considered clear. Arsenicals covered

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- Gains made at 8¾¢ feed cost per pound—⅓¢ less than the next most effective feed additive.
- Increase of 18% in daily weight gains.
- Better feed efficiency than any other single additive—or combination of additives.
- 95 pounds of feed with Arsanilic Acid did the work of 100 pounds without.

What about 1960? The need for low-cost production will be uppermost in the minds of every hog man that wants to stay in business. And these growers will be pleased to know that Arsanilic Acid often works even better in their own feed lots.

Arsanilic Acid needs no potentiator. It goes directly to work in the gut to combat subclinical diseases—is also active against organisms not touched by antibiotics.

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by NDA's are apparently in a similar situation to stilbestrol.

2. Difference Between Veterinary Drugs and Food Additives—A veterinary drug, administered to an animal through another media than feed or drinking water, and provided no "prior sanction" or "general recognition of safety" is present, may still be a "food additive" if there is likelihood that a residue will remain in human food, and that determination will be made on a "case-to-case" basis.

Therapeutic drugs will informally be divided between those which are "food additives" and those which are not. All drugs added to feed are "food additives" unless covered by an exclusion such as (1) prior sanction or (2) general recognition of safety.

The question is of vital importance because substances added to food must be covered either by Food Additive Orders or exemptions from the Food Additives Law. To obtain orders, manufacturers must submit petitions which include testing data and practicable analytical methods.

Regarding exemptions, chemicals may be excluded either by "general recognition of safety" or "prior sanction." To the best of our knowledge, FDA will not publish a proposed "white list" of veterinary drugs "generally recognized as safe."

FDA scientists will attempt to decide whether or not a therapeutic drug would be "likely" to leave residues in human food. If they decide that residues would not be likely, the drug would not be considered a food additive.

Asked for an example at a recent bar association meeting, FDA's Arthur A. Checchi said that a drug given to an animal during pregnancy would be unlikely to result in residues in food, since the animal would not be slaughtered for food use at that period.

Responsibility of Proof

If the FDA scientists cannot come to a conclusion on whether residues are likely, the manufacturer of the drug will have the responsibility of proving that no residues are likely to be left in human food. If FDA-ers are convinced, by the industry data, the product will not need food additive clearance. Of course, where a particular use of a product is covered by "prior sanction" or "general recognition of safety," no food additive clearance will be needed.

Where there is no "prior sanction," and where a therapeutic drug is not "generally recognized as safe," FDA will consider the drug a "food additive" if there is a likelihood that residues of the drug remain in food and will require a petition for it. The petition and final order will probably set a tolerance of zero for such residues, and also require the manufacturer to provide a practicable analytical method for determining residues in food. However, in those cases where a zero tolerance is set, FDA will not require the lengthy toxicity tests it demands for proposed additives which leave a residue in food.

From FDA's regulatory viewpoint, it will make little difference whether a veterinary drug is or is not classed as a food additive. In both events, residues in human food may be in violation of the law unless the drug is an exempt drug. The product can possibly be seized as a food additive for which there is no order or exemption. If a drug is a food additive with a zero tolerance, residues will make the product subject to seizure because of the violation of the tolerance set in the Food Additive Order.

From the manufacturer's viewpoint, however, there is an important difference whether his product is or is not classified as a food additive. If it is, he has to go through the expensive and time-consuming work to develop a practicable analytical method which FDA can use for enforcement purposes.

3. Combination of Drugs—As to the type and amount of data required to satisfy FDA for clearance of two or more drugs in combination in a feed, we have found no clean-cut answer. This area is in a constant state of flux. It varies from day to day, apparently, with the drug combinations and the FDA reviewer. In general, we can go by the following guide lines:

a. Demonstration will have to be made that tissue residues, or absence of same from either drug used in the combination have no adverse effect one upon the other—in other words, that no chemical reaction or synergistic action occurs as a result of the combination.

b. Since a large portion of the feeds now in use contains a certifiable antibiotic, clearance with FDA will require substantiation of efficacy for both items used in a combination. This substantiation of efficacy is being approached in various ways. In some work on combinations companies hope to sustain this, as far as the antibiotics are concerned, by showing no adverse effects on blood levels. However, there is no guarantee that FDA will accept this.

c. Recently, FDA has been implying that the stability of both drugs in a combination will also have to be demonstrated in the finished feed. This area is yet to be explored as to the extent of the work required for acceptance by FDA.

4. Metabolites and Conversion Products—This subject has been

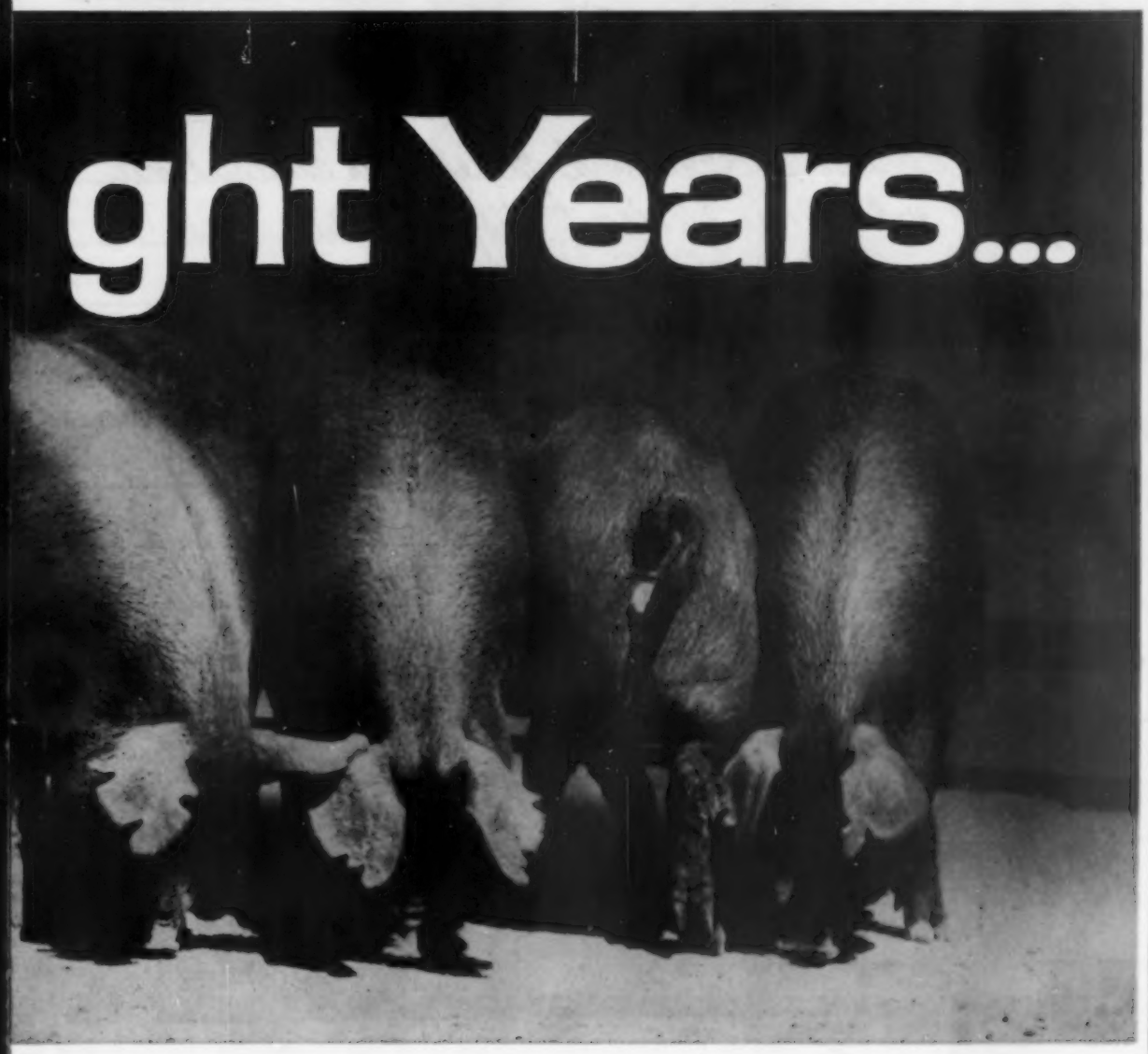
Pay Way Feed Mills Picks Iranian Trainee

KANSAS CITY, MO.—Amir Pambechy, 26, Tehran, Iran, has been selected as a sales trainee by Pay Way Feed Mills of Kansas City. Mr. Pambechy graduated from Central Missouri State College in Warrensburg, Mo., in May with a B.S. degree in chemistry and agriculture.

Amir Pambechy

A fluent linguist in English, Arabic, Persian and Turkish, he has traveled extensively through the world and the United States. While at college he held numerous student offices and was a member of the agricultural club, international relations club, foreign language club and the American Chemists Society.

His family still resides in Iran where his father is an import-export commissioner in Tehran.



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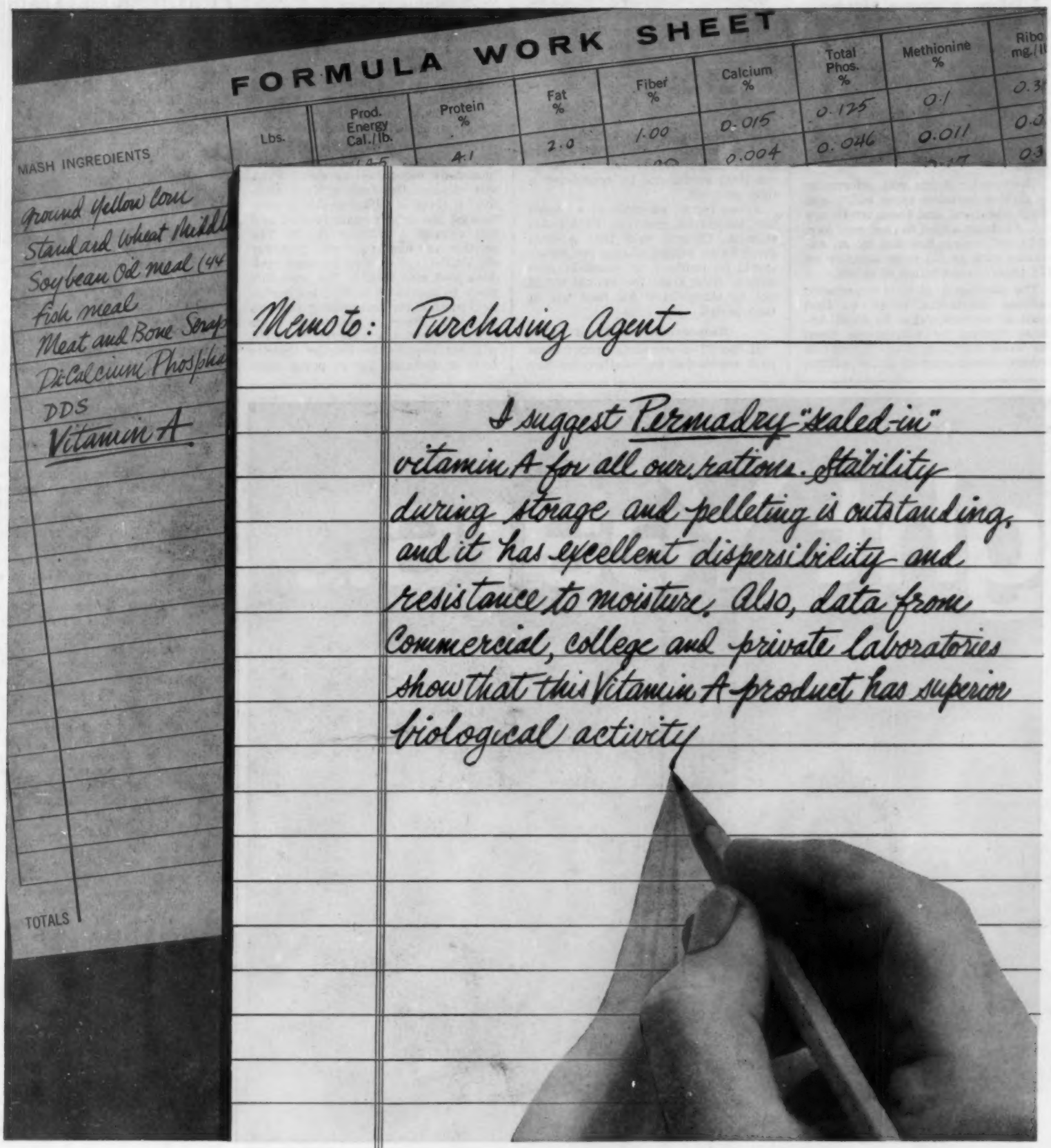

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PREDICTS SOUTHEAST TO BE STOCK CENTER

TIFTON, GA.—Byron L. Southwell, head of the animal husbandry department of the Georgia Coastal Plain Experiment Station here, predicted recently that the southeastern states would become the livestock center of the nation.

The statement was made in interviews at the Tift County Chamber of Commerce's annual banquet at which the Georgia Coastal Plain Experiment Station was honored.

Mr. Southwell said the trend toward the movement of the livestock industry for several years has been toward the southeastern states. He said the mild climate, coupled with the ability of the southeastern farmers to produce feed crops and good pastures on their land is making it possible to expand livestock operations.

take for the growing gilts was such that their daily gains was not much reduced, said the two men. Those on the seleniferous rations did, however, show some symptoms while those that received arsanilic acid along with the selenium did not, they added.

"For brood sows, however, arsanilic acid at the level of .01% (this level is generally used in swine rations) apparently has little effect in overcoming the decreased reproductive performance where seleniferous rations are used. For brood sows in seleniferous areas, therefore, the analysis of grains for selenium before they are incorporated into rations is still the most practical control measure," Dr. Wahlstrom and Dr. Olson added.

Results of this work indicate that selenium may have a rather serious effect on the reproductive performance of brood sows at levels of intake too low to cause serious visible damage to the dam herself, they concluded.

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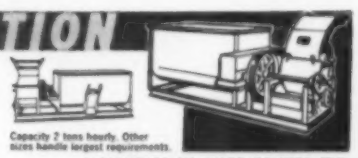

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pushed by various scientific members of FDA for the past 10 years. Although the recent rumblings would indicate a firmer insistence along this direction, as far as we know it is not an absolute requirement for a current clearance.

This area of product metabolism and the possibility of different metabolites, conversion products, or degradation products should be removed from the realm of conjecture and hypothesis as far as any submission to FDA is concerned. All such statements should be backed by factual scientific data. At this point, it's hard to judge what FDA will require here. The Food Additive Regulations are definite that we must be concerned with degradation products. The original residue study may provide some indication of what will be necessary.

If a problem does arise over the presence of metabolites and conversion products, the dietary studies themselves should, in our opinion, still be aimed primarily at the product as it is to be marketed and administered. The research work, as far as metabolites or conversion products are concerned, should be centered on demonstrating the over-all pharmacology of such an article and whether or not there was any residue of it in the edible tissues.

5. "De minimis" Theory and Tissue Residues—As far as we can tell, the "de minimis" theory, which does hold in the pesticide field, will not apply to any items covered under the feed additives law. Any tolerance that would issue for any chemical would depend on the nature and over-all pharmacology of the item. In some cases, such a tolerance could be zero. However, we must be reminded that FDA does not recognize any such magnitude as absolute zero, since it is their contention that there may always be some small finite amount present, which is beyond detection because of assay sensitivity. Furthermore, FDA may still hold to their hundred-fold safety factor in the establishment of any tolerance.

Another concept which may be evolving in this area is that of tying zero residues in with the pharmacological "no effect" dose. This involves an increment type chronic toxicity evaluation in laboratory animals. Although this has not been pushed by FDA, one company had requests for same, just lately, from Canada.

Arsenical Protects Against Selenium

BROOKINGS, S.D.—Arsanilic acid demonstrated its protective effect against selenium in growing swine in experiments recently at South Dakota State College, according to Dr. R. C. Wahlstrom, animal husbandman, and Dr. O. E. Olson, chemist.

In these experiments, selenium in-

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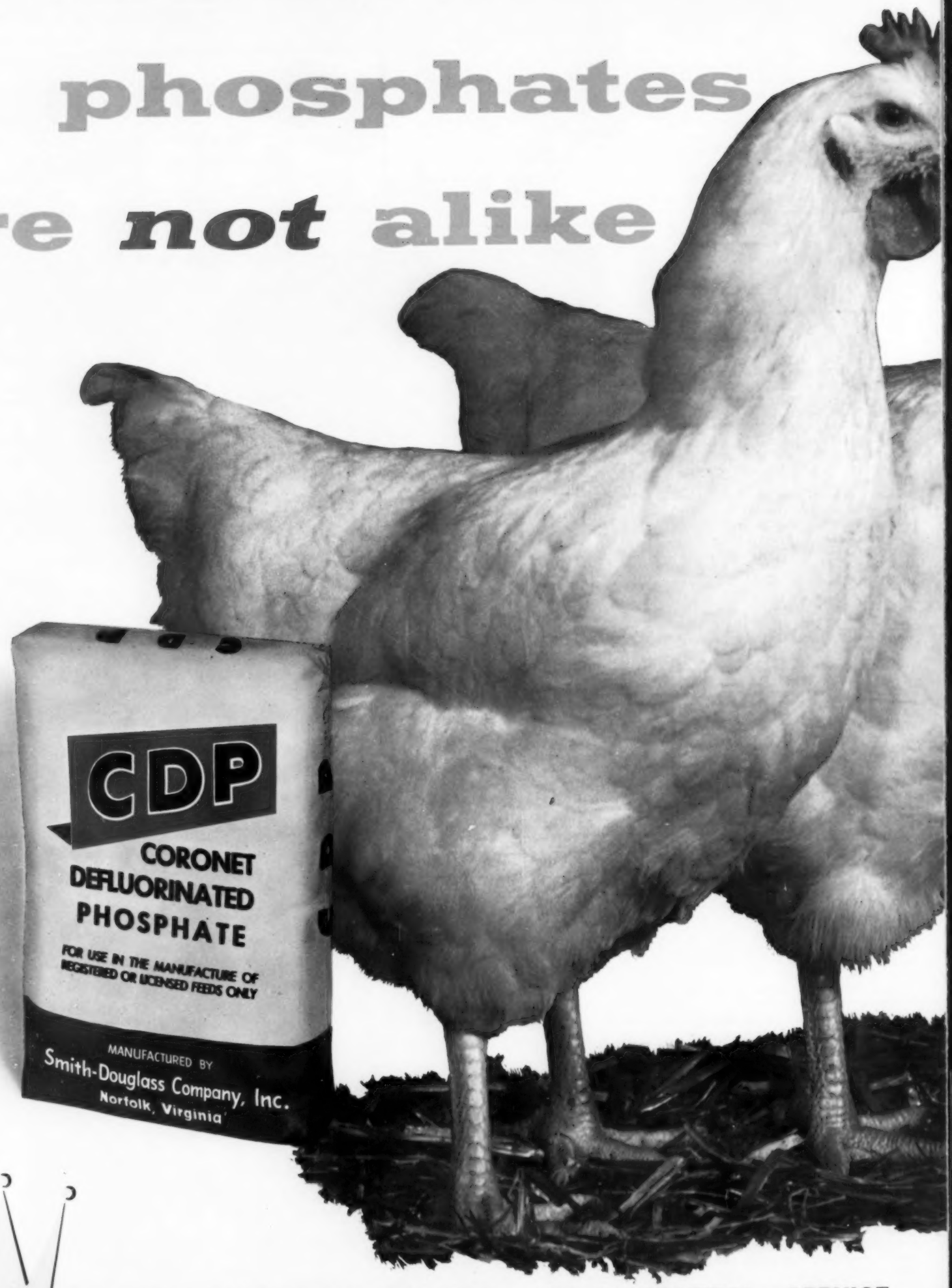
All defluorinated phosphates are *not* alike



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Nutritionally, CDP is a tried and tested source of phosphorus, palatable to livestock even in free-choice feeding. ALL of the phosphorus in CDP has demonstrated total biological availability to both plant (rumen bacterial micro-organisms) and animal life. Nutritional evidence establishing CDP as the BEST defluorinated phosphate is contained in the following literature:

1. "The Availability of Phosphorus from Different Sources of Poults Fed Purified Diets." Poultry Science, Volume XXXIII, Number 5, September, 1954.
2. "A Comparison of the Availability, to the Young Growing Chicken, of the Phosphorus in Defluorinated Phosphate and Analytical Reagent Grade Dicalcium Phosphate," by Lime Crest Research Laboratory, October, 1954.
3. "The Availability of Phosphorus from Different Sources for Poults Fed Practical-Type Diets." Poultry Science, Volume XXXIV, Number 5, September, 1955.
4. "Phosphorus Availabilities as Determined by New Feeding Experiment," by Lime Crest Research Laboratory, November, 1955.
5. "Phosphorus Availability Assays by the University of Illinois Method," (as presented by Dr. H. M. Scott) conducted by the Laboratory of Vitamin Technology, Inc., September, 1956.

Coronet Defluorinated Phosphate is a result of creative development, quality production and continuing research. No phosphorus feed products are subjected to more meticulous quality control than those produced by SMITH-DOUGLASS.

Guaranteed Uniform Analysis

Phosphorus	Calcium	Fluorine
18.0% min.	31.0% min. 34.0% max.	0.18% max.

Screen Analysis: All through 14 mesh; 80% on 200 mesh, plus or minus 5%.

Solubility Comparison of CDP With Other Defluorinated Phosphates

PRODUCT	Solubility in 0.4% HCl	Solubility in 2% citric acid	Solubility in neutral ammonium citrate	Average total solubility
CDP	100.00%	87.14%	86.16%	91.10%
Product A	96.48%	51.19%	19.41%	55.69%
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Illinois Economists Give Farmers Advice On What to Watch in Integration Contracts

URBANA, ILL.—Economists J. R. Roush and N. G. P. Krausz from the University of Illinois College of Agriculture have issued advice to farmers and farm leaders on points to look for in integration contracts.

Following is the text of an Illinois bulletin in which the agricultural economists make their suggestions:

Farmers have produced such products as sugar beets and canning crops on a contract basis for years. More recently, contracts have been offered in poultry and livestock enterprises. The number of these contracts is increasing.

Before such a contract is signed, it should be read carefully. The complete agreement should be in writing. Verbal agreements or incomplete contracts often lead to lawsuits. This discussion covers some points that should be included in integration contracts.

Period of contract. — Be sure the period covered by the contract is certain. Both starting and termination dates should be spelled out.

Renewal provisions. — Some contracts call for automatic renewal—in the absence of advance written notice of cancellation. Be sure you have the same rights at the end of the term as the company.

Cancellation provisions. — Make certain you understand under what circumstances either party can cancel the contract. Many contracts have a wide range of cancellation provisions for the integrator. Few contain provisions for cancellation by the farmer. Without mutual protection, the farmer or his heirs must continue the contract to the end, regardless of conditions, but the company can step out of its commitment for any of the reasons stated in the contract.

Assignment of interest.—Some contracts prevent either party from assigning his duties to another party without written consent. An understanding of assignment provisions is especially important to a farmer who may wish to retire during the contract period and turn the operation over to another party.

Legal relationship of parties.—The legal relationship of the parties should be stated in the contract. Is the farmer an employee or a partner of the integrator, or is he an independent contractor? If he is an employee, the integrator may be liable for actions of the farmer that cause injuries or losses to a third party. Or the integrator may find that he must make social security contributions for the farmer employee. These and other legal considerations would not hold if the farmer were deemed an independent contractor.

Supplies furnished by each party.—The production items to be furnished by each party should be listed. The contract should also be explicit regarding what is furnished. For example, some egg production contracts state only that the integrator will supply a certain number of "birds." They do not state whether the birds are baby chicks or 24-week-old pullets or whether they are all pullets or part pullets and part cockerels.

The contract should also clearly state who pays for insurance on the animals, buildings, equipment and feed supplies.

Management decisions.—The farmer should understand the extent to which the integrator can make management decisions. If the integrator controls these decisions, the farmer should acquaint himself with the integrator's management program. If he disagrees with this program, he should not sign the contract.

Producer payments. — Some contracts guarantee the farmer a price so much above or below a certain market quotation at the time of marketing. Make certain that a specific quotation on a specific market is given. If prices are reported for several grades or weight classes, the specific grade on which the price is to be based should be stated. Some price reports present a range of prices instead of a single price. In such cases, make certain whether the top, bottom or mid-point of the reported price range is used as the basing price.

If the contract calls for bonus or incentive payments to the producer, the basis and method of computing amounts should be written out in a clear and understandable formula or table.

Arbitration provisions.—If the contract is well written and each party understands his rights and duties, disputes will not arise. In case disputes should arise, the contract should contain provisions for settlement without long and costly court procedures. These arbitration provisions should be explained in detail in the contract.

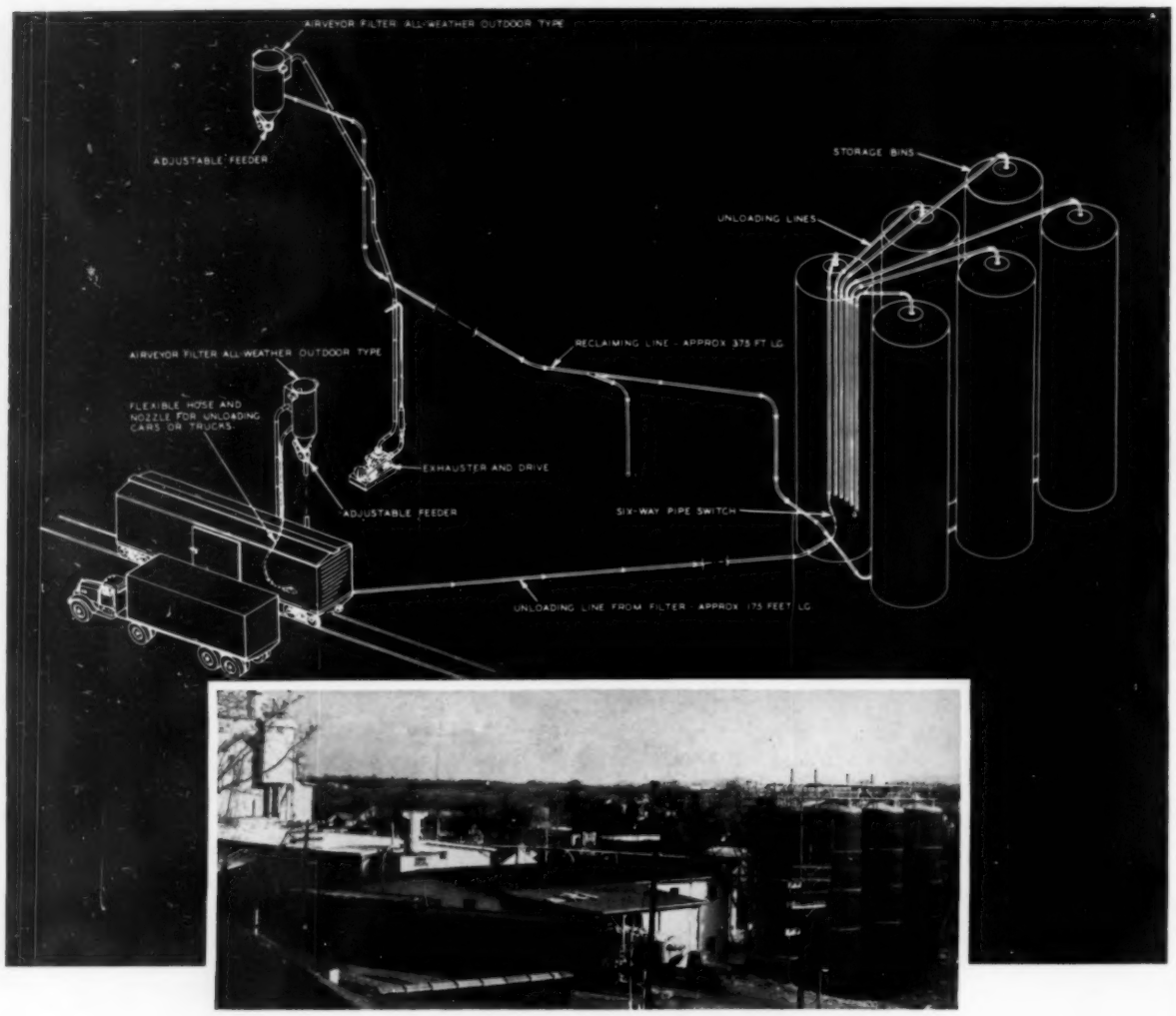
These are only some of the more important points to look for in integration contracts. They illustrate the need to read each contract carefully before signing it. If questions arise regarding any points in the contract, it would be best to consult your lawyer.

Bemis Salesman Retires

ST. LOUIS, MO.—R. R. Gardner, a sales representative with the San Francisco division of the Bemis Bro. Bag Co., has retired after 48 years of service with the organization, it was announced by A. H. Silvernail, Jr., regional sales manager, San Francisco. Mr. Gardner, long active in the seed industry as well as the bag industry, joined the Bemis company in 1911 as a clerk in the credit department at the company's San Francisco plant. In 1942, he joined the Bemis San Francisco sales division and was assigned special duties in seed packaging.

B. D. EDDIE ELECTED

OKLAHOMA CITY—B. D. Eddie, president, Superior Mills, Oklahoma City, has been elected member for a five-year term of the University of Oklahoma Research Institute in the farmer and stockman councillor group.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How did F. M. Brown's Sons, Inc., double production at one of their Pennsylvania mills without plant expansion? They needed increased storage area to meet new capacity requirements. What was the solution? Two Fuller Airveyor® pneumatic conveying systems were installed in their Birdsboro mill. One for rail car and truck unloading and the second system for reclaiming from storage to process.

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In addition to increasing storage space, and reducing unloading time and costs, these systems are self-cleaning, thus minimizing contamination.

If you are now handling dry, bulk, granular materials, it will pay you to look into Fuller pneumatic conveying systems. Fuller systems are engineered specifically for your particular application. They bend around corners, run up or down, through walls and floors, almost any distance—even underground. Write or phone today outlining your problem. Fuller will gladly furnish additional information with appropriate recommendations.

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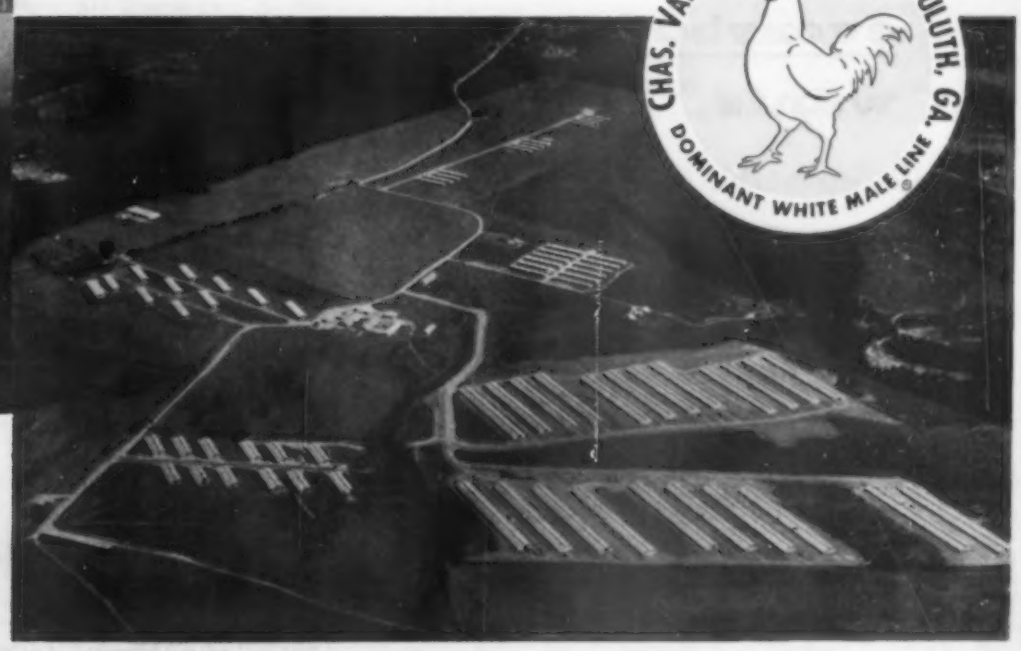

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THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

DELIVERY TRUCK—Shown is one of the delivery trucks at Feeders Supply Co. The firm recently added a bulk feed truck.

Diversified Program Increases Sales for Louisiana Feed Firm

By Jess F. Blair
Feedstuffs Special Writer

Feeders Supply Co. of Shreveport, La., is still staying close to the shore in matters of integration and financing, according to E. F. Carter, a partner in the firm.

"Any time you promote business nowadays, it takes some heavy financing and lots of borrowed money," he said. "We are branching out a little in several directions, but are doing it cautiously."

One project in which the company profited considerably was in promoting 15,000 laying hens. Mr. Carter talked to farmers, encouraged them to put in small flocks and then helped finance the started pullets and feed. He also worked with the banks in getting the poultry houses built.

MANAGER — Reet Lawhon, partner in the company and manager of the second store where dairy supplies are kept, displays a milk pail sold by the firm. The firm's dealership in dairy equipment has helped increase business.

Egg Routes

None of the producers have over 3,000 birds, but they developed retail egg routes in this city of nearly 200,000 people, and have been getting good prices for eggs. The company has gotten its money back for birds and feed and is now operating on a weekly basis. Producers pay off the feed bill each week.

"We might have gone overboard and promoted 100,000 hens," said Mr. Carter, "but the market didn't seem to justify it. The flocks are increasing, but it's on a sound basis with the original owners doing their own financing by taking out part of the egg profits."

The company has an outside salesman with a practical knowledge of livestock and poultry. To take care of diseases and more serious problems, Mr. Carter has an arrangement with a trained serviceman who works in a nearby town. He is hired on a fee basis and is subject to call at all times. Mr. Carter says that where a company does not need a full-time serviceman, this is a satisfactory and economical method.

Feeders Supply Co. is not overemphasizing chickens. In fact, feed sales to dairy cattle are perhaps even larger, while a considerable tonnage

OWNER—A. F. Carter, one of the owners of Feeders Supply Co., Shreveport, La., discusses a problem with one of his customers.

goes to beef cattle, hogs and horses.

"We have a second store in another part of town," said Mr. Carter, "and with it are specializing in seeds, farm supplies and dairy equipment. We bought out a dealer who handled Surge dairy supplies, and are rapidly expanding this phase."

The firm is promoting the installation of large milk coolers and pipeline milking systems. Some of the large glass-lined tanks sell for about $4,000 installed. The milking systems and parlor stalls often increase the cost several thousand dollars.

"We don't just go out and sell these things on the spur of the moment," said Mr. Carter. "We learn all we can about the dairy owner, size of his herd and methods of operation. If he is young enough and has the ability to expand and profit by it, then we work with him on financing. Often we may go to the banker or other lending agencies and help him get the money needed."

Swine feeding has gained some headway in the Shreveport area, and the firm has promoted hogs in a small way. Here again Feeders Supply Co. has stayed close to shore and not over-expanded. Mr. Carter says he would rather have feed sales from several types of feeders than to concentrate on just one kind of livestock or poultry.

"I think our sales record will bear us out on that," he said. "The company whose feed we handle says we are the fifth highest in feed sales in the Gulf coast region. This is for feed only; it does not take into account the seed, farm and dairy supplies and other items sold."

One other source of revenue is horse feed. There are many saddle and show horses along the Texas border. By keeping plenty of hay and special horse feeds, the company gained this business several years ago and still holds it. In addition to feeds, there is a continuous sale of saddles, bridles and horseshoes.

"We try to overlook no sales opportunity," said Mr. Carter. "Our delivery routes are one means of selling a variety of items to the same customers. We now have four routes, which reach as far as 40 miles away. Most of these customers are buying from us every week. It is a means of selling them many things besides feed."

The firm employs one outside salesman who takes orders and helps with minor problems. Mr. Carter says an ideal employee would be a truck driver-salesman combination, but usually cannot be found. Good salesmen don't want to lift feed sacks and do routine chore work, while not many route drivers have the training and ability to advise farmers on problems and sell the needed items.

Feeders Supply Co. pays the salesman a straight salary. In that way, he can be used at the store for other work when not on the road. The owners say that salesmen they have hired on commission did not like to do any work after completing their rounds, even though they might get back to the store early in the afternoon.

Another partner in the firm, Reet Lawhon, says that most business nowadays must be promoted. He is in charge of the second store and has spearheaded the promotion of dairy equipment.

"We are trying to adapt ourselves to new methods," he said, "but we don't get too far ahead of the trends. Most of the feed is loaded at the large mill which the manufacturer has here at Shreveport. Bulk feeding is coming rapidly, so we recently added a bulk truck with two compartments. In it we can carry two kinds of feed each trip."

Being conservative by nature, the company has some strict credit policies. In promoting chickens or dairy cattle, each farmer is investigated. He must be a man with some property, be young enough to have another 10-15 years of activity ahead and have a reputation for honesty.

"We find that taking a note on poultry and livestock is not enough," said Mr. Carter, "for a man can give them back to you and quit at any time. We always get a mortgage on something else, such as land, houses or other property."

The company does a big credit business, but all accounts must be paid within 60 days. After that the owners add a 7% interest charge, and make a strong effort to collect.

"Our credit losses are small," Mr. Carter said. "We try to help our customers succeed, but just won't take a chance on someone with a doubtful reputation. That is one kind of credit customer we don't want."

Feed Session Slated For AACC Convention

ST. PAUL—A session on feeds and feed supplements has been slated during the annual American Association of Cereal Chemists meeting May 1-5, at the Morrison Hotel in Chicago. John Mahoney, chemical division, Merck & Co., Inc., Rahway, N.J., will head up the session.

Technical sessions will begin Monday afternoon with four 40-minute talks by speakers. Tuesday morning the regular technical program gets under way with concurrent sessions scheduled for all day Tuesday and Wednesday.

TO INCORPORATE

FRESNO, CAL.—The Fresno Cattle Feeding Co. has filed articles of incorporation with stock valued at $200,000. The firm deals in feeding and raising of livestock. Principals in the company include William R. Jenkins, Charles F. Hamlin and Kenneth J. Fryer, all of Fresno.

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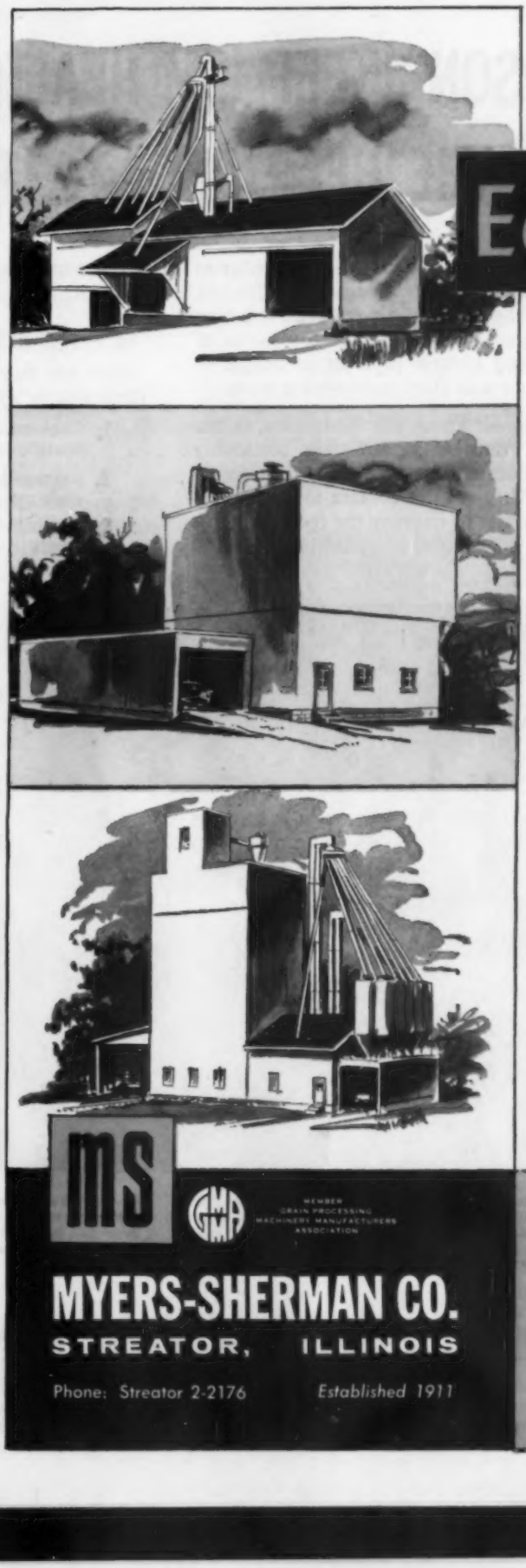

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Integration Trends, Broiler Auction Are Outlined at Georgia Short Course

By Special Correspondent

TIFTON, GA.—Integration in the poultry industry has "come of age" and is "here to stay," according to an authority in the field who spoke here recently at a Broiler Production short course at Georgia Coastal Plain Experiment Station under sponsorship of Abraham Baldwin Agricultural College.

T. M. Cordell, dean, college short course director, had charge of the program. Those attending included a number of southern Georgia broiler producers, commercial men and technical poultrymen.

Hulan Hall, southeastern sales and service manager, Chas. Vantress Farms, Inc., Duluth, Ga., and president of the Georgia Poultry Federation, spoke on "Trends in Integration." He pointed out that there are various degrees of integration and added that "the broiler business changes so fast that the only thing consistent about it is its inconsistency."

"Most people who have been in the broiler producing business for as long as 10 years have integrated one way or another," Mr. Hall said.

He said some are in integration "all the way," which he described as vertical integration, and some are in it part of the way, which is horizontal integration. By "all the way," he said, he meant that the grower is also producing his eggs and chicks for replacement, and is in processing business as well.

The reason for this integration is "economy," Mr. Hall pointed out.

Mr. Hall declared that "we are entering a new era." "Cost of production has been reduced by scientific means," he said, "but it is no business for speculation or big expansion." It is not a business for high profits, but one which will yield a steady income to the poultry grower when he uses good management.

He added that while integration is here to stay, there will always be a place for the man who buys his own feed, his own chicks, grows them out in his own way and markets them as he pleases. "This is the independent grower," he added.

Broiler Auction

Milton Dendy, Athens, extension poultryman, described the poultry auction at Gainesville, which has been conducted by the Georgia Poultry Exchange since early in 1959. He said a broiler grower could sell poultry on the auction by buying a $100 share of stock in the exchange. Auctions are held on Monday, Tuesday, Thursday and Friday.

Mr. Dendy showed colored films of the auction in action. He gave out a mimeographed sheet which showed that the prices paid through the auction, on the average, were more than those paid otherwise in Georgia. Some of the facts given concerning the marketing at the auction were:

During the period of March 30-Oct. 10, 35,284,900 broilers were sold on the auction for an average price of 15.35¢ lb. This was 19.85% of the state's total sales of 183,963,100 during the same period. The broilers not sold on the auction brought 14.85¢ lb.

The highest volume was on May 20 and the lowest was on April 28. The highest price paid was 16.7¢ on March 30 and April 3.

Difference in price (weekly average), 1¢ in favor of auction price Oct. 5-9, and 1¢ in favor of farm price April 27-May 1.

Difference in daily price was 1.4¢, in favor of auction Sept. 8, and 5¢ in favor of farm on June 30.

Federal Inspection

"The Effect of Federal Inspection on Processors, Producers and Contractors" was discussed by a panel led by R. A. Gayvert, Athens, extension economist in poultry marketing, with the following panelists: Clarence Smith, Tifton, producer; Dr. George Harner, assistant supervisor poultry division, inspection branch, U.S. Department of Agriculture, Atlanta, and Lannis Thomas, South Georgia Broilers, Inc., contractors, Blackshear.

Dr. Harner emphasized "wholesomeness" in poultry inspection. He said federal inspectors are working in the poultry processing plants. He said technical supervisors keep check on the poultry plants, each having 20 plants under his direction. He said the average condemnation of poultry in the Southeast is about 1.47%.

Clarence Smith, producer, said he did not think it is right for the grower to be penalized for all the poultry condemned through inspection. He said some of the condemnations are caused by cuts and bruises that happen to the broilers after they get into the plant, and for which the producer is not responsible.

"I am perfectly willing to take the loss for condemnations generated by what happens to broilers on my farm, but the processor should take some of the loss as well," Mr. Smith declared.

Mr. Thomas, of Blackshear, said he, too, felt that the processor should take some of the losses in condemnations. He said the poultry for which his firm contracts is carried to proc-

man conquers mountains

And, some day, man will also conquer cancer. With your help.

Guard your family . . . fight cancer with a checkup and a check

AMERICAN CANCER SOCIETY

ANDERSON "KEEP 'EM HEALTHY" PROGRAM THE HELP OF NOPCO-PAK®

Everybody in the industry knows the Anderson Cattle Co., Emporia, Kans. Through its feeding pens pass 50,000 head of cattle every year, and how the company fares—what it buys and sells—is of more than passing interest to a lot of people in Kansas, Colorado and other neighboring states.

The important point about the Andersons, father and son, and Frank O'Daniel, their consulting nutritionist, is that they have gone over to scientific feeding 100%. They are not content to try for last year's gains, but aim to improve the record by pioneering with new formulas . . . and they have 10 experimental pens going full blast on new ideas to prove it.

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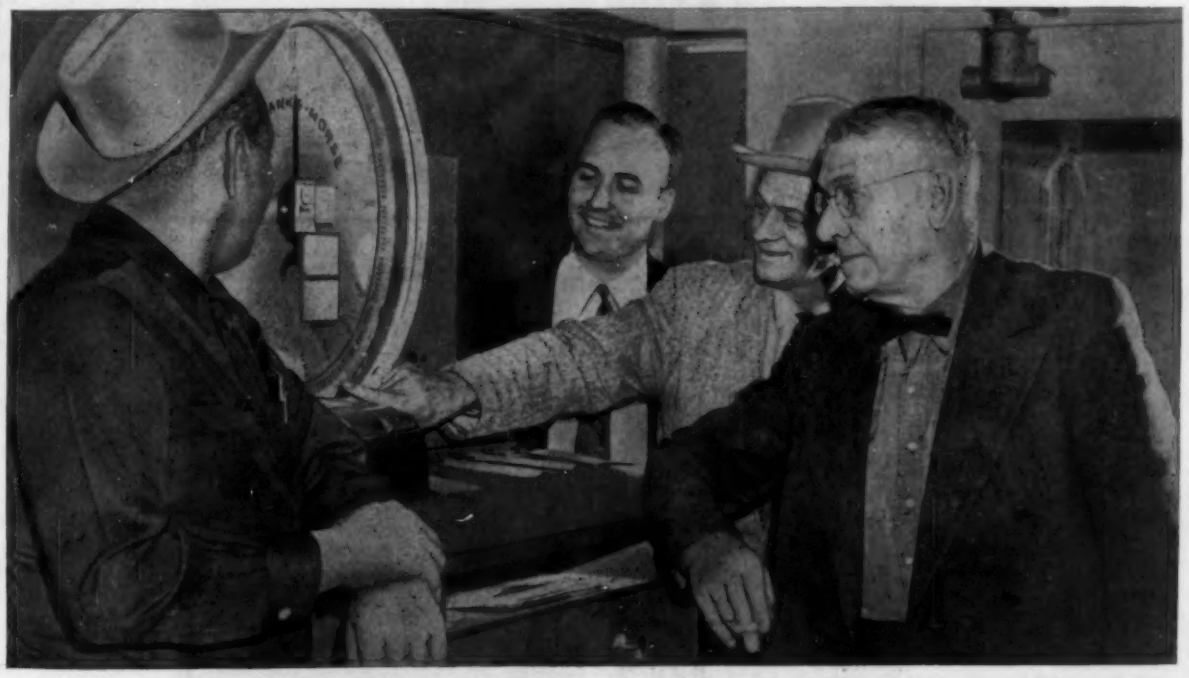
Where are they now? If you know cattle, some of these figures will jolt you.

1. Conversion: 8-9 to 1 (remember when 16 to 1 was considered a good rule of thumb).
2. Average daily gain: 3.8 lb. (this is the average gain while cattle are on the Anderson feed lot).
3. Feeding time: 100 days instead of 120 (same finish weight: 1000 to 1200 lb.).



KEY MEN in the Anderson Cattle operation near Emporia, Kans., are (from left) Kenneth T. Anderson, president and co-owner; Maury Bass, district sales manager for Nopco Chemical Company, Newark, N. J., which furnishes the company all its vitamin trace mineral premix; Frank O'Daniel, Kansas City nutritionist and president of the Pro-Vita Company, who acts as Anderson's nutritionist and animal husbandman; and Emil T. Anderson, founder of the firm. O'Daniel, in close concert with Kenneth Anderson, developed the formula for the high-grade supplements containing Nopco premix which are now being used with outstanding success by the Anderson Cattle Co.

Basic producers of Micratized® Vitamins A and D, niacin, calcium, pantothenate, choline chloride, and other products

essing plants in Florida, and the birds are inspected there by the Florida state inspectors only because they are for sale within the state. He said, however, that Florida has a rigid inspection law.

Harold Lanier, Athens, service manager for Paradise Valley Farms, spoke on the "Management and Brooding of Broilers." He said his company puts a limit of 600-700 broilers under a 1,000-unit brooder, and sees that the small chicks have water and feed given to them in the type of equipment which they can utilize according to the age of the chicks. He said his company does not guarantee a certain profit per pound on the poultry, but instead, figures the contract on a feed-weight ratio and price basis.

He said profits paid to the producers by the company ranged from 1.2¢ to 2.2¢ when chickens sell for 14¢; 1.5 to 2.7¢ when they sell for 16¢, and from 1.8 to 3.3¢ on 20¢ chickens.

Mr. Lanier said Paradise chicks are kept on 6-8 in. of dry litter. Concerning disease and medication, he said no antibiotics can equal TLC—"Tender Loving Care"—of biddies in controlling disease.

Labor Saving Equipment

Arthur Gannon, Athens, extension poultryman, described the most economical labor-saving equipment. He suggested that it is better to put broiler houses "east to west," as these are warmer in the winter and cooler in the summer. He suggested houses 30 by 110 ft., with at least three bulk feed bins. Many people use automatic carriers to carry feed inside the chicken houses, but these can be homemade economically for hand use. He emphasized the importance of clean water, clean feed and enough heat for the comfort of the chicks.

Ideas on broiler houses were presented by Griffith Clark, Trenton, N.J., representative of Homasote Co., manufacturer of insulated building materials. Mr. Clark pointed to the value of insulated materials for protecting chickens from adverse temperatures.

Mr. Clark, along with Harvey Mays, Trenton, and Morgan Wynne, Jacksonville, Fla., had a trailer on display, showing samples of miniature chicken houses.

SHORT COURSE SPEAKERS—Shown (left to right), are men featured on the Broiler Production short course program at Abraham Baldwin Agricultural College recently: Seated—Lannis Thomas, Georgia Broilers, Inc., Blackshear, Ga., broiler contractor; Clarence Smith, Tifton, broiler producer; Dr. George Harner, assistant supervisor, poultry division, inspection branch, U.S. Department of Agriculture, Atlanta, and R. A. Gayvert, extension economist, poultry marketing, Athens. Standing—Milton Dendy, Athens, extension poultryman; Morgan Wynne, Jacksonville, Fla., representative of Homasote Co.; Harold Lanier, service manager, Paradise Valley Farms, Athens, Ga.; Harvey Mays, Trenton, N.J., Homasote Co.; Hulan Hall, Duluth, southeastern sales and service manager for Chas. Vantress Farms, Inc., and president of Georgia Poultry Federation; Griffith Clark, Trenton, N.J., Homasote Co., and Arthur Gannon, Athens, extension poultryman.

ACCOMPLISHING AMAZING ADVANCES WITH VITAMIN MINERAL SUPPLEMENTS

4. Bills for drugs and medicinals reduced from $1000 all the way down to $100 per month!
5. All but eliminated foot rot (a persistent hazard in every feed lot).
6. Virtually eliminated minor health problems that were enough to knock cattle off their feed.

AN OLD CHINESE CUSTOM

As you can see from Items 4, 5 and 6 above, the Andersons are making amazing strides. It is their theory that it is cheaper to do as the Chinese are supposed to do: pay somebody to keep you healthy instead of waiting to be cured after you're sick. Knowing full well that the only profitable cattle are those that finish up to weight and within the time limit, the Andersons work hard at developing an "ideal" ration—one that will build resistance to disease, combat costly setbacks, prevent red nose, coccidiosis, pneumonia, kidney stones, and foot rot.

NOPCO PROUD TO BE PART OF THE PLAN

Nopco is proud to be associated with the Anderson Co. in the "Keep 'em Healthy" Program. Working from formulas developed by O'Daniel, Nopco custom-manufactures Nopco-Pak premixes containing vitamins A, D and E, plus trace minerals in combinations and at levels unique in the industry.

The Andersons have found that Nopco's Micratized® vitamins remain stable in spite of high levels of trace minerals—are still potent when fed. They also like the dispersibility of Nopco's vitamins. Nopco has made a study of particle size in order to assure satisfactory dispersible vitamin products.

CAROTENE DOES NOT SUPPLY ENOUGH VITAMIN A

Finally, Anderson cattle get plenty of preformed vitamin A. Anderson nutritionists do not rely on carotene to supply the necessary vitamin A levels. They feed Nopcay® Type V, which has been shown to be 6 to 11 times as effective as carotene in this respect. It has been shown time and again that a deficiency in even one food factor will produce disease. Results show that Anderson cattle are getting a beautifully balanced ration. The food factors are all there, cattle stay remarkably healthy, and every year the Andersons are achieving better and better control over their huge investment.

BRIGHT EYES, glossy hide, healthy appearance, and well-moistened muzzle of a typical Anderson Cattle Co. steer attest to the outstanding results which its feed lot has been getting from a custom vitamin premix manufactured by Nopco Chemical Company. The Hereford above—within 200 lb. of market weight—will have gained approximately 380 lb. in 100 days on Anderson's highly fortified feed rations.

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Screw Conveyor Corp. Names Vice President

HAMMOND, IND. — Screw Conveyor Corp. of Hammond, Ind., announces the election of Martin M. McGuire as vice president and plant manager of its subsidiary, Screw Conveyor Pacific Corp.

M. M. McGuire

Mr. McGuire joined Screw Conveyor Corp. in 1955, serving as district sales manager in the Michigan, Ohio, Indiana and Kentucky territory. In June, 1956, he was transferred to the Screw Conveyor Pacific Corp. plant located in Santa Clara, Cal. Two years later, he was promoted to plant manager.

ADM Appointment

MINNEAPOLIS — Karl Butzer of Mankato, Minn., has been appointed sales representative for Archer-Daniels-Midland Co. mink feeds in Wisconsin and Upper Michigan, according to Roy Fiege, sales manager of the company's fur food department. Mr. Butzer has served in the production, order and inventory control departments of the ADM formula feed plant at Mankato. He will make his headquarters at Wausau, Wis.

ADDS STORAGE

PETALUMA, CAL. — Santa Rosa Feed Corp. has added four storage bins for corn and milo to increase holding capacity by an additional 200 tons at the Petaluma branch. Ben Marcus is secretary-treasurer of the firm.

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Lamb Fattening

Lamb fattening offers farmers opportunities for increasing their income from small grain pastures, because lambs usually make more profitable use of such feed than any other class of livestock.

Oklahoma State University reports that lambs have returned as much as $34@40 acre from wheat pasture and $15@25 acre from maize stubble in tests at its Ft. Reno Agricultural Experiment Station.

Light feeder lambs are preferred, say Oklahoma sheep specialists, because they offer opportunity to put on additional gains to offset part of marketing, transportation and other costs.

HANDLING NEW LAMBS—A "Profit Pointers" bulletin published by Oklahoma State advises resting new lambs two or three hours after unloading. After they have rested, they should be offered some grass hay or mixed grass-legume hay, followed by water.

Treating for internal parasites is a good practice to initiate after the lambs have had two or three days of rest. And it is suggested that the lambs be filled with dry hay before turning to lush pasture or offering them grain.

Shearing the lambs before starting them on feed will result in: (1) Reduced initial weight, (2) allowing for more gain without exceeding optimum market weight and (3) faster gains.

PASTURE FEEDING—Five lambs per acre will produce approximately 170 lb. of gain per acre for a 90-day period, according to results of Oklahoma studies. A rate of 10 lambs per acre has produced approximately 300 lb. of gain.

If pastures become short, the producer should start grain feeding for a smoother shift to a self-feeding operation or to dry-lot feeding. Some growers provide a hay bunk full of grass hay or well cured alfalfa for lambs on pasture to help prevent "over-eating" and digestive disturbances.

Some palatable feed fed at night will help get the lambs into the central corral and will help accustom lambs to dry-lot feed in case of bad weather or field conditions.

Self-feeding on pasture may offer opportunities for extending the pasture and for getting a high degree of finish in a short period of time.

DRY-LOT FEEDING—Producers are advised to provide at least 10 sq. ft. of lot space per lamb. Other provisions: Plenty of clean, fresh water at all times; at least 1 linear foot of trough space per lamb when hand feeding, and 1 linear foot of feeder space for every 3-4 lambs when self-feeding.

About 150-200 lb. of grain per lamb and approximately the same amount of roughage are required for an 80 to 90-day feeding period.

Oklahoma State recommends starting lambs on feed after 3-4 days of rest. They should be provided one fourth pound of grain per head per day after having been filled with hay. It is a good idea to allow about two weeks to bring to full feed.

A ration containing approximately 60% roughage and 40% concentrates is recommended for self-feeding. And, if non-legume roughage is fed, a mineral mix should be provided free choice at all times.

To help keep feed dry, self-feeders should be lined up north and south so the sun will hit both sides.

The Oklahoma researchers point out that pelleted rations usually give faster gains with less feed, but the producer should look into pelleting costs. They say that pelleting is most likely to pay when complete consumption of low quality or high price roughages is desired.

HORMONES AND ANTIBIOTICS—The use of hormones such as

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stilbestrol and antibiotics such as Aureomycin in lamb fattening is recommended by Oklahoma State.

Stilbestrol may be mixed into the feed of lambs in dry-lot. Half a milligram per pound of ration (2 mg. per head per day) is the recommended level.

Stilbestrol implants are recommended for lambs on pasture, and may be used also in dry-lot feeding. Three milligrams in the ear according to manufacturer's directions is the recommended level.

Stilbestrol administered at either of the above recommended levels (not both) should increase gains 15-20% and should increase feed efficiency 10-15%.

Aureomycin and similar products have increased gains by about 10% at the Ft. Reno station. The increase in gain from antibiotic use may be expected in addition to gains from stilbestrol.

The recommended level for Aureomycin is 30 mg. per head per day. An antibiotic may be added to the feed at the rate of 7½ mg. per pound of ration.

MARKETING — Lambs should be sorted for market according to uniformity of size and finish. A cutting chute 16 in. wide, 30 in. high and 16-18 ft. long, with a 2-ft. cutting gate in the end, will be of great help in getting the sorting job done.

Producers are advised to feed their fattened lambs at normal levels before shipping. Excessive feed or salt will cause scours and undue shrinkage.

Lambs should not be caught, lifted or held by their wool or fleece. Crowding of lambs in shipment should be avoided. A 14-ft. truck will hold 40-45 lambs.

Three Vermont Firms Sell Feed to State

MONTPELIER, VT.—Contracts for the purchase of $105,900 worth of feed for farms at six state institutions have been signed with three feed companies, it has been announced by the state purchasing department here.

The largest order went to E. W. Bailey & Co., Montpelier, which will provide $35,000 worth of feeds for the state hospital in Waterbury; $17,400 worth for the state prison in Windsor and $10,500 worth for the Vermont Agricultural and Technical Institute in Randolph Center.

H. M. Brown & Co., Castleton, received an $11,000 contract to provide feed for use at the Weeks School in Vergennes and will sell another $20,000 worth to the state for use at the Brandon Training School.

Wirthmore Feeds, Inc., Waltham, Mass., was contracted to provide an $11,500 feed supply for the soldiers' home in Bennington.

Changes Predicted In Sheep Industry

URBANA, ILL. — Today's sheep producers need a more business-like approach to compete with beef and pork producers, according to a University of Minnesota professor of animal husbandry.

Speaking recently before a University of Illinois "Sheep Day" gathering, Dr. R. M. Jordan added that the sheep industry faces some major changes.

He thinks lamb production will soon be in the hands of fewer producers who will increase their flock size. They will begin switching from a "pastoral" system of sheep production to more intensive grain and drylot feeding, Dr. Jordan believes.

These changes, however, will be possible only if producers wean lambs earlier, a practice already popular in Minnesota, he noted. Dr. Jordan cited advantages of earlier weaning as: Farmers can sell more 90-lb. fat lambs in June, internal parasite problems are reduced considerably, farms can carry more sheep and early weaning can result in greater profit.

He also noted a Minnesota research trial showing that lambs weaned at 10-12 weeks and grain-fed in drylot or on pasture gained as rapidly as comparable non-weaned lambs creep-fed on pasture with the ewes.

EXCEEDS GOAL

ST. JOSEPH, MO.—Dwight Dannen, president, Dannen Mills, Inc., directed the recent successful United Fund charity campaign in St. Joseph. The campaign exceeded its goal for the first time since 1942.

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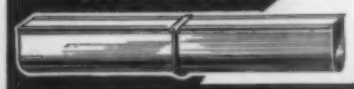

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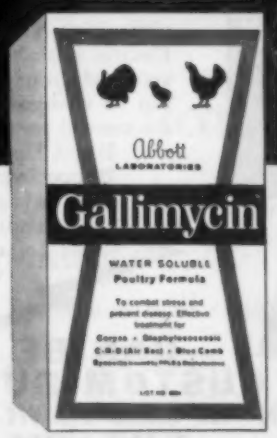

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SURVEY COMMITTEE—The 1959-60 feed survey committee of American Feed Manufacturers Assn. met in Chicago recently to prepare its 18th annual report to the nation's livestock, poultry and related industries. Shown standing at the blackboard are L. C. Cunningham (left), Cornell University, and Dean L. E. Jackson, chairman, College of Agriculture, Pennsylvania State Unnversity.

Shown seated in the front row (from left) are: T. H. Blosser, State College of Washington; R. P. Niedermeier, University of Wisconsin; H. S. Teague, Ohio Agricultural Experiment Station; R. C. Wahlstrom, South Dakota State College; J. O. Dunbar, Purdue University, and P. M. Reaves, Virginia Polytechnic Institute.

Second row: W. E. Gleason, AFMA; J. I. Miller, Cornell University; W. C. Skoglund, University of New Hampshire; C. I. Draper, Utah State University; C. R. Gray, Agricultural Experiment Station, University of California; J. C. Driggers, University of Georgia, and E. L. Stephenson, University of Arkansas.

Third row: D. F. Fienup, University of Minnesota; Director C. W. Upp, Agricultural Experiment Station, Louisiana State University; A. L. Neumann, University of Illinois; W. A. Glista, industry advisor, Wirthmore Feeds, Waltham, Mass.; W. M. McMillen, industry advisor, A. E. Staley Manufacturing Co., Decatur, Ill.; John Matsushima, University of Nebraska, and J. L. Van Horn, Montana State College.

Fourth row: R. L. Kathe, AFMA; W. T. Diamond, AFMA; I. S. Riggs, chairman, AFMA board of directors, the Quaker Oats Co., Chicago; K. E. Gardner, University of Illinois; E. R. Barrick, North Carolina State College; J. A. Hoefer, Michigan State University; F. A. Kutish, Iowa State University; Director C. Fealrs Wilson, Agricultural Experiment Station, Kansas State University, and O. M. Ray, AFMA, Chicago.

Georgia Chicken Feed Firm Named in Suit

CARROLLTON, GA.—Georgia Broiler Supply, Inc., of Carrollton, producer of chicken feed, has been named defendant in a U.S. Labor Department complaint alleging violations of the federal wage and hour law.

Broiler Supply is alleged to have failed to pay some of its workers as much as $1 an hour, while many were allegedly paid less than the law required under the overtime pay provisions. An injunction is sought compelling future compliance with the wage provisions and also requiring that proper records be kept. It also is asked that Georgia Broiler Supply be prohibited from making future shipments in commerce of goods produced by workers employed in violation of the federal wage law.

The suit alleged that the wage and hour law applied because the feed produced by employees of the Carrollton firm was sent to farms in Georgia and Alabama, and that chickens which consumed it were handled and transported to processing plants by the employees. The poultry was grown for the defendant by farmers in both states, the complaint alleges.

Willasson Appointed Drew Representative

LINDSAY, CAL.—R. D. Willasson Sales Co. of Omaha, Neb., has been appointed representative for the agricultural division of E. F. Drew & Co., Inc., of Lindsay.

The Omaha firm will handle Drew's complete line of vitamin supplements and its vegetable fats for animal feed.

New Sales District Set By W. R. Grace & Co.

MEMPHIS, TENN.—Creation of a new sales district "to keep pace with an expanded market" for its products has been announced by W. R. Grace & Co., Grace chemical division, Memphis, manufacturer of industrial chemicals, fertilizers and urea feed compound. Office of the new sales district is at 8230 Forsyth Ave., St. Louis.

The new office—headed by Robert L. Tilton—will cover Kansas, Missouri, Kentucky and the southern half of Illinois and Indiana. Mr. Tilton is assisted by J. D. Leeke.

In addition to serving present customers of Grace within the district, new distributorships will be established for anhydrous ammonia, Grace "Urea Prills" and Grace "Micro-Prilled Urea Feed Compound."

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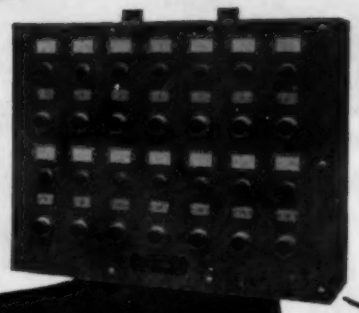

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Poultryman Says There Is Still Plenty Of Opportunity in North Carolina

By Special Correspondent

RALEIGH, N.C.—The southeastern broiler industry may be reeling from a prolonged period of depressed prices, and bankers in northern Georgia may have trouble liquidating flocks on which they foreclosed, but William J. Jasper, North Carolina extension poultryman, declared "there is still plenty of opportunity for the poultry industry and progress in North Carolina is possible."

"I know we have had low prices for 18 months and many firms have been placed in distress," said Mr. Jasper, who recently replaced Dr. Clayton Libeau, on two-year leave as poultry marketing specialist in the North Carolina Extension Service. "And as discouraging as the present situation may look, there are still opportunities for the industry."

When compared to chief competing areas, Mr. Jasper said North Carolina poultrymen have three basic conditions working in favor of their broiler industry—mild climate, relatively low hauling costs to good markets and an abundance of low cost labor.

Second Place

In 1958, North Carolina moved into second place among the nation's broiler producing states, with 134,185,000 broilers, compared to pacesetting Georgia's 292,199,000. Gross income to North Carolina broiler growers was $77,935,000, slightly less than half of Georgia's $164,521,000. Both states averaged about 17.6¢ lb. on broilers, liveweight.

Mr. Jasper declared the future of the poultry industry in North Carolina lies in increased efficiency and reduced costs. He added that "it is now doubtful whether a specialized firm can continue successfully without being tied into some kind of vertical structure."

The extension poultryman, who spent a year and a half working with broiler growers and processors in Duplin County, North Carolina's top broiler producing area, said the depressed prices have had two significant effects on the entire broiler industry.

Low Prices

First, the low prices have made the broiler industry larger by increasing the per capita consumption of broilers.

Second, the low prices, frequently mentioned below actual production costs, have transferred the industry into the hands of the more efficient individuals and firms.

Each unit of an integrated hatchery, feed supply, grow out, hauling or processing operation gains through the scheduling of volume to match capacity of equipment; through the elimination of most negotiations and bookkeeping associated with interfirm transactions, and by the consideration of each major decision from the viewpoint of its effect upon the overall operation rather than just one part of it, he explained.

"It is much easier to bring about a satisfactory merger of a solvent business than one with its back to the wall."

Recommendations

Among Mr. Jasper's recommendations for the North Carolina broiler industry is increased concentration of broiler growing near feed distribution and processing facilities—which could result in substantial reductions in feed delivery costs, salaries and travel expenses of fieldmen and costs of hauling birds to processing plants.

In discussing ways and means to reduce production costs, Mr. Jasper said processing plant managers should consider the possibilities of increasing nearby growers and establishing new growers near the central facilities.

With minimum capacities of at least 20,000 birds, plus 100% bulk feeding on every broiler farm, costs of delivery of feed and chicks could be reduced.

Also, fewer farms will be needed to provide the supply of broilers for a firm's operations, and fewer feed trucks and a reduced number of delivery stops will be necessary. With these economies, Mr. Jasper said grower contracts could be written to provide higher returns and thus give incentive to greater nearby concentration.

"North Carolina can continue to gain lower costs of production with larger production units under better management, more broilers per square mile, higher degrees of integration and improved carcass quality.

"All these factors, plus effective merchandising techniques, can make North Carolina's broiler income continue to grow."

Mr. Jasper made no recommendation on how expanded broiler production in North Carolina might be financed, nor did he have any comment on compensation for growers who were too far distant from central facilities, or who might be replaced by newer and larger broiler growing plants.

Vaccine for Shipping Fever Being Tested

WOOSTER, OHIO — An experimental virus vaccine for shipping fever, a disease of beef cattle, is being tested by the Ohio Agricultural experiment station. About 12,000 cases of this disease are reported annually in Ohio alone.

Dr. Charles Gale developed the vaccine from a virus suspected of playing a major role in this disease. He isolated the virus from nasal discharges of cattle suffering from shipping fever. He was able to manufacture the vaccine from laboratory grown viruses.

Fifty of 340 head of cattle shipped from a west Texas ranch to Wooster in October have been vaccinated with the dead virus by a veterinarian. The treated animals were allowed to mingle freely with untreated cattle in the railroad cars during the five-day trip. Blood samples were taken at the time of vaccination, at the time of shipment and upon arrival at Wooster to follow the possible changes in development of shipping fever antibodies attributed to the vaccine and to natural buildup.

Although scientists working on shipping fever across the country have thought certain bacteria instigated the fever, Ohio workers believe viruses are "strong suspects." However, they haven't ruled out bacteria. Confusing the picture is the role that stresses, such as weaning, irregular feeding and watering, drafts, sudden changes in temperature and crowding on rail cars play in the onset of the fever.

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Arkansas Poultry Exchange Operates On 'Sound Basis'

By Special Correspondent

SPRINGDALE, ARK. — Speaking at the first annual stockholders meeting of the Arkansas Poultry Exchange at Springdale, Joseph A. Friedman, New York, commodity broker and a member of the New York Mercantile Exchange, emphasized the need for cooperation between producers and processors in the poultry industry. He urged these two segments to work together for a sound marketing forum.

He told the group that the various poultry auctions in the nation should cooperate as closely as possible and suggested that this be worked out after regional differences are dissolved.

In his report to stockholders, Henry Thomason, exchange manager, said the exchange was operating on a "sound basis" and was "well equipped" to perform its functions.

He said that the exchange had caused a far greater impact on the northwestern Arkansas broiler industry than had been originally expected. The exchange opened last June.

Mr. Thomason told stockholders the facility had provided "a convenient place for trading" and had done "outstanding" work in inspecting poultry offered for sale.

Successful Inspection

"The work done by our inspectors has been outstanding and has been largely responsible for the buyers' acceptance of the auction," he asserted, adding, "the credit committee has endeavored to carefully watch the granting of credit, and the experience along this line has been completely successful."

He commented that the exchange goal for the next year is 75% of the available supply being handled.

During the 56 sales covered in the stockholders report, the exchange sold a total of 8,972,550 birds to some 30 different buyers. This was an average of 160,224 broilers per sale.

A total of 12,585,850 birds was listed for sale in the period, an average of 224,747 per sale. (Sellers have a right to reject sale of their broilers.)

Sales by the exchange accounted for 17.13% of all broilers marketed in Arkansas during the period, it was stated in the report to stockholders.

The average price paid at the auction was 14.85¢ lb., compared to a state average of 14.66. This was a difference of .19¢ lb., or an additional profit of $55,700 for producers using the facility, according to the report.

The average weight of the birds was 3.15 lb. (The "extra" profit was figured by multiplying the total pounds sold by the .19¢ lb. received above the state average price.)

The largest number of birds marketed in one week was 943,900, during the week of Aug. 3-8, figures in the stockholders report showed.

Mr. Thomason's report stated that the Peterson Produce of Decatur was the largest seller during the 56 sales. Mr. Peterson sold a total of 2,126,450 birds from the 2,632,950 it offered for sale. This was an average of 151,889 broilers weekly. The second largest seller was Tyson's Hatchery of Springdale, which marketed 1,257,650 broilers at the auction.

New Officers

At the meeting Carl Henson, Henson's Hatchery, Prairie Grove, Ark., was elected president of the exchange, succeeding Tom Hagan, district manager for the Ralston Purina Co. Mr. Hagan had served as president of the exchange since its formation last spring.

Other new officers include Bill McCurdy, Eagle Mills, Bentonville, Ark., vice president; Harold Reese, Quality Feeds, Springdale, secretary-treasurer; E. E. Kever, Kever & Shaw, Elm Springs, Ark.; Don Tyson, Tyson Industries, Springdale; John Dunlap, Jr., Dunlap Produce, Washburn, Mo.; Jeff Brown, Jeff Brown Co., Springdale; Jack Wilmoth, Peterson Produce, Decatur; Glen Parsons, Parsons Feed & Supply, Springdale; A. N. Garrett, Farmers Produce, Rogers, and Clarence Anglin, George's Live Poultry, Springdale.

Former Borden Plant Is Converted to Whey

BOSCOBEL, WIS. — The former Borden Co. plant here, idle since last spring, is being converted to produce condensed whey and dried whey.

The plant was purchased recently by Mr. and Mrs. Jerome Ungs, Luxemburg, Iowa, who have leased it to a new corporation, Valley Milk Products, Inc.

Mr. Ungs said he and Don Hess, Dyersville, Iowa, are the chief stockholders in the new firm. Mr. Hess formerly operated a whey processing plant at Hillpoint, Wis.

Bulk Plant Bought by Washington Co-op

PORTLAND, ORE. — Washington Cooperative Farmers Assn. recently announced purchase through its subsidiary, Western Farmers Assn., of a feed distribution plant at Junction City, Ore., from Fisher Flouring Mills Co., Seattle.

The acquisition represents the deepest move so far of the Seattle-based processing and marketing organization into Oregon markets.

The announcement said the new bulk feed station would be supplied by the new feed mill being constructed by the association at the Mocks Bottom industrial district in Portland.

Washington Co-op's expansion into Oregon previously had included acquisition of poultry plants in Portland and Salem, and a farm supply co-op in Hillsboro.

INCORPORATED

GREELEY, COLO. — Colorado Grain Storage Co. has been incorporated, listing $40,000 capitalization, to buy, sell and deal in wheat, barley, butter and eggs by L. I. Hart, Kathryn K. Hart, Richard Kirby Hart and Louis I. Hart, Jr.

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'Government Cartel' Blasted at Chicago Commodity Meeting

By F. C. BISSON
Feedstuffs Special Writer

CHICAGO—More than 300 members and guests attended the annual Founders' Dinner of the Commodity Club of Chicago Oct. 28. Membership in the organization is drawn from the Chicago Board of Trade, the Chicago Mercantile Exchange, the Chicago Livestock Exchange and top officials of the leading banks and financial institutions along La Salle Street and from banks in the Chicago suburban area. They heard Arthur "Red" Motley, president and publisher, Parade Publications, attack the governmental cartel which strangles initiative.

Presiding was William R. O'Donnell, club president. Others at the speakers' table besides Mr. Motley, were Samuel A. McMurray and Carson H. Varner, first and second vice presidents respectively of the club with directors Robert C. Liebenow, board of trade president; Everette B. Harris, president, Chicago Mercantile Exchange; Richard M. Withrow; James P. Reichmann; Lee B. Stern; James D. Walsh and William Silverstein, club secretary and treasurer respectively; Clarence Rowland, Jr., chairman of the board of trade; Alfred H. Gruetzmacher, dinner committee chairman; George Wilkens, executive vice president, Minneapolis Grain Exchange; Ben Regan, president, Nationwide Food Service; William S. Katz, board chairman, Chicago Mercantile Exchange, and George V. Greene, vice president, Chicago Open Board of Trade.

The high point of the evening was the talk by Mr. Motley. Taking "Free Enterprise and the Commodity Markets" for his subject, he treated it in his usual free-wheeling manner and left no doubt on which side of the fence he was on. In the same dynamic style which has featured Mr. Motley's podium appearances for more than two decades, there was no question in the minds of his attentive and appreciative audience but that they themselves are in no small part to blame for the way in which an organized minority—inspired only by political expediency—has been able virtually to decimate the commodity trades, not only at a tremendous cost to the taxpayers but at the same time, without doing a thing toward effectively solving the perennial "farm problem." That small but highly vocal group, said Mr. Motley, has substituted in the place of the legitimate commodity trade, a gargantuan government cartel that has not only been highly successful in destroying this country's foreign markets for cotton . . . but is now well on their way to doing the same for the grains and other agricultural commodities.

In essence, his talk was a call to arms to the commodity trades to take an active interest in politics and a plea for individual participation in political campaigns at all levels, particularly at the national one.

Likening what has already been done by opponents of free enterprise toward facilitating the "take-over" of agriculture by the government and, by so doing, relegate the legitimate commodity trade to near-complete impotency and at best reduce its role to that of messenger-boys and delivery-men for the Commodity Credit Corp., Mr. Motley sketched these as mere successive steps down the path that leads to complete socialization, not only of the agrarian population but of the transportation, merchandising, warehousing, processing industries. The bigger the government owned surpluses of commodities become, he said, the closer will be the sad day when the government will be the only buyer and the only seller.

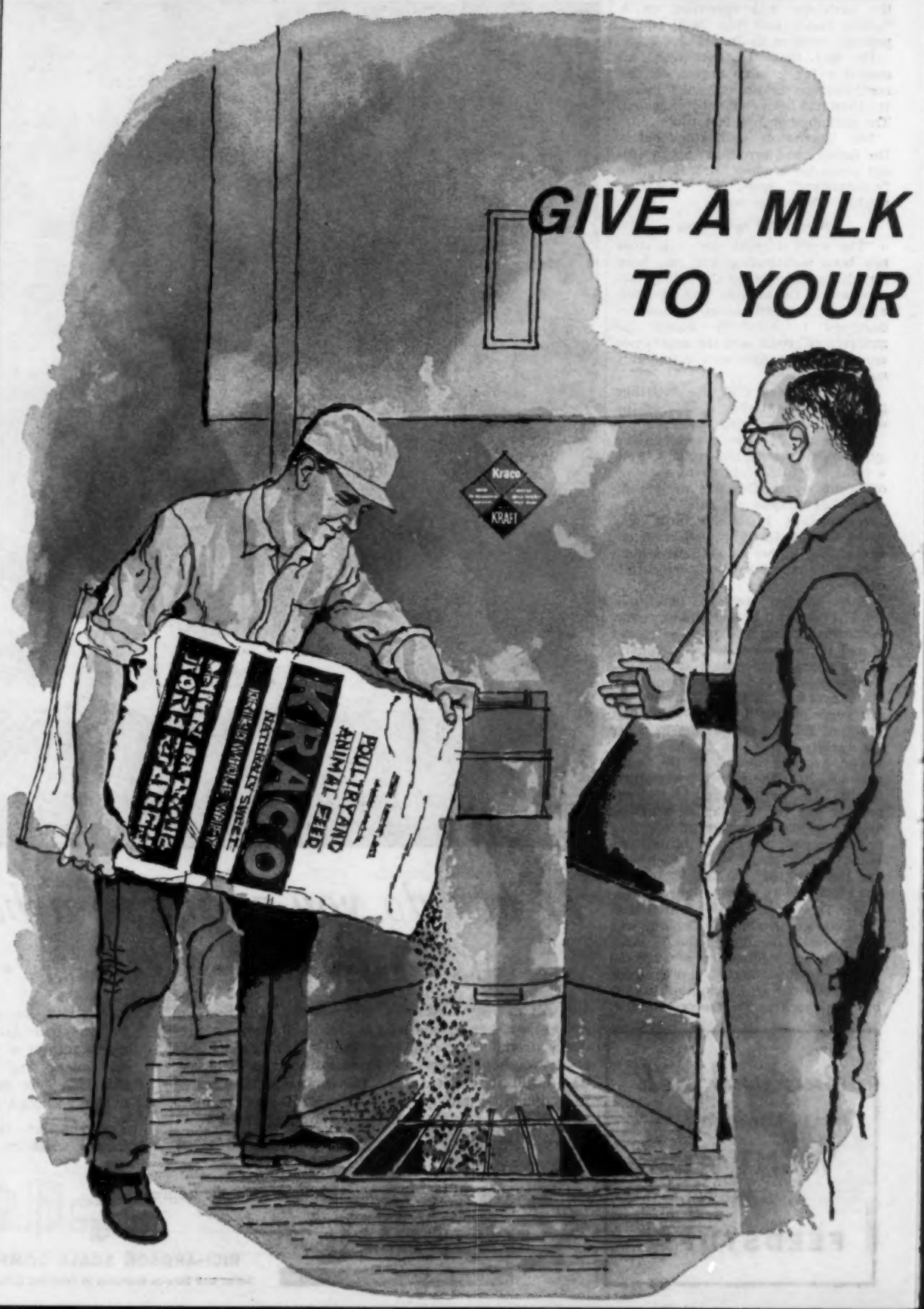
Later Than You Think

Pointing out that it's already much "later than you think," Mr. Motley stressed not only the desirability but the acute necessity for the election of congressmen and senators who are positively pledged in advance, not only in opposition to any further expeditions into the realm of socialism, but in addition, pledged in favor of repeal of laws now on the statute books that have created and perpetuated governmental bureaus and with them, the horde of federal employees that have been administering and enforcing not only the laws but, likewise, hundreds of accompanying administrative regulations.

He cautioned emphatically against the danger of "laissez faire." He reminded the audience that as it has required about 30 years for conditions in the commodity trades to have reached their current impasse,

COMMODITY CLUB—From left to right at the speakers' table of the second annual founder's dinner of the Commodity Club of Chicago are: Everette B. Harris, president of the Chicago Mercantile Exchange; Robert C. Liebenow, president, Chicago Board of Trade; Samuel A. McMurray, club vice president; Alfred H. Guetzmacher, chairman of the dinner committee; Arthur H. Motley, publisher of Parade Publications, Inc., dinner speaker; William R. O'Donnell, club president, and Clarence Rowland, Jr., chairman of the Chicago Board of Trade.

Arthur H. Motley
Founder's Day Speaker



they should not become impatient and discouraged if the economic climate and thinking of our national legislators is not changed at the very next election. It will require time and patience, Mr. Motley said, but unless a start is made now, it may never be accomplished.

No Miracle Expected

Apologizing for the use of an old cliche, he mentioned that "Rome was not built in a day" and that an overnight miracle should not be expected. He mentioned that he is the chairman of U.S. Chamber of Commerce Committee that is working hard for greater individual dedication to the election of men and women to the Congress of the U.S. who not only preach the doctrine of free enterprise when they are running for office but who practice it after they are elected.

In closing, he reiterated an earlier statement that the rank and file of the American electorate, greatly over-burdened by the oppressive tax-load placed on them by professional "do-gooders" and "economic tinkerers," are right now in a highly receptive mood to take part in expediting a wholesale exodus from Washington in both the legislative and administrative fields—and in their place press for the substitution of sane, sound economic laws bearing on the seemingly ever-present and virile "farm problem."

New Booklet Issued On Overheating Corn

WASHINGTON — A booklet on "The Overheating of Corn by Artificial Drying" has been issued by Corn Industries Research Foundation, Inc., in Washington.

The booklet points out that overheating of corn touches off a chain reaction of trouble for corn farmers, elevator men and merchants, feeders and processors.

It adds that too much heat ruins seed corn and markets are limited for such damaged corn, that buyers have little use for heat-damaged corn and that lowered grades can result, that feed values of corn may be lessened by excessive heat, and that corn dried at elevated temperatures on the farm or at the elevator creates serious processing difficulties among industries which use corn as a raw material.

Making Clupak Paper

NEW YORK—Continental Can Co., Inc., has started production of Clupak paper at its Hodge, La., paper mill, according to a recent announcement by G. E. Amerman, president of Clupak, Inc.

Clupak paper will be produced for general converting purposes, with special emphasis on multiwall sacks, according to Mr. Amerman. Production capacity will be approximately 250 tons a day.

RELIANCE MOVES

MINNEAPOLIS — Reliance Feed Co. has moved its offices from the Phoenix Building to Room 334, Midland Bank Building. Its phone number is unchanged, FE 2-2418.

Dr. W. Clark to Head Division of Honeggers'

FORREST, ILL.—Dr. W. Gregory Clark has been named to head Honeggers' international division, according to a recent announcement. He will handle sales and technical service of the Honegger Layer in foreign countries.

Dr. W. G. Clark

The international division will operate as part of the Honegger Breeder Hatchery, Forrest, Ill., where Dr. Clark is headquartered.

Dr. Clark has a veterinary degree from the University of Pennsylvania and has had further training in poultry pathology at Oregon State College and at the Armed Forces Institute of Pathology.

He has been in charge of poultry diagnostic laboratories at Tunkhannock, Pa., and in Havana, Cuba. Dr. Clark recently managed a commercial egg production farm in New Jersey.

National Liquid Feed Group Organized

KANSAS CITY, MO.—Twenty-four Morea liquid feed distributors from 12 states became charter members of the National Liquid Feed Assn. at the first meeting held recently in Kansas City.

The National Liquid Feed Assn., a non-profit corporation, stated its purpose is "to stimulate and encourage better nutrition through science and the application of the mechanical arts."

The association is composed of feed distributors, liquid feed manufacturers and the suppliers of the main ingredients.

Paul Dusterhaus, president of Dusterhaus Farm Supply, Quincy, Ill., was elected president; Cliff Willis, Pitts & Willis, Lamars, Iowa, vice president, and E. W. Thomas, president of Farm Service Corp., Boonville, Mo., treasurer.

Besides these three, on the board of directors are: George Gigstaed, president of Gigstaed Fertilizer Co., Nortonville, Kansas; Joe Nosky, vice president of Feed Service Corp., Crete, Neb.; Jack von Mettenheim, president of Wisconsin Liquid Feed Corp. and Illinois Liquid Feed Co., Princeton, Ill.; Tully Talbot, president of Talbot-Carlson, Inc., Audubon, Iowa; Fred Schappler, vice president, Gyerman Corp., Mitchell, S.D., and Jay Friedman, president of Liqi Feed, Wood River, Ill.

Lloyd Burlingham, famous farm newscaster, reports to feed mixers on the value of fresh-dried sweet whey—KRACO by KRAFT.

BY-PRODUCT BOOST FEEDS...THE THRIFTY WAY!

by Lloyd Burlingham

You are interested, I'm sure, in improving the quality of your feeds . . . provided you can do so at a reasonable cost. I believe you can and that's why I recommend Kraco to you.

Kraco is pure fresh-dried sweet whey. A thrifty and natural source of important milk by-product nutrients that makes a good feed even better. When you use Kraco in your formulas, your customers get results. You'll sell more feed, get repeat orders and make more money and profit.

I've watched Kraft make Kraco. Only whey produced in the processing of their finest low-acid cheese is used. They dry the whey in a matter of hours to produce a product that is truly fresh and naturally sweet.

Kraco is guaranteed to contain a minimum of 68% lactose (milk sugar). And high-quality protein (largely lactalbumin). You also get the important whey factor, milk minerals and B complex vitamins of whey. No wonder Kraco makes good feeds better.

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Selling feed in bulk is profitable. But, unless you have the right bulk truck body, your profits can be eaten up in excessive repair and maintenance costs. Not so with a Bulkanizer. But we want you to be absolutely certain this is true. So, if you'll simply write us a letter, we'll gladly send you the names of other feed dealers in your area who've gone bulk with Bulkanizer. Talk to them. Find out first-hand how Bulkanizer can give you the dependable service that means more profit from your bulk feed operation.

Write us today. We'll also send you the name of your nearest Bulkanizer dealer so you can get his bid at your earliest opportunity.

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PRODUCTION SEMINAR—Pictured here are some of the participants in a production seminar held recently in Kansas City in connection with program and research planning for the 1960 Feed Production School. Some of the committee members and school officials may be seen in the front row of tables. Left to right are Art Saalfield, Quaker Oats Co., Sherman, Texas; Phil Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa; Roger Berglund, Feedstuffs, Minneapolis; C. E. Swick, Kent Feeds, Muscatine, Iowa; Larry Alley, Pay Way Feed Mills, Kansas City, and Jerry Karstens, Feed Age, Chicago. At the microphone on the right is Eric Carlson, Ralston Purina Co., St. Louis, and on his left is John Wessman, Feed Production School, Inc. Out of view is the committee chairman, Maxwell Cooley, Hoffman-Taff, Inc., Springfield, Mo.

Seminar Sets Stage for 1960 Production School

KANSAS CITY—Certain new and prospective new developments in connection with ingredient preparation and feed mixing came in for attention at the recent Feed Production School seminar in Kansas City. Particular attention was focused on possible research to provide answers to some of today's problems in grinding and mixing—which will be principal subjects at the 1960 Production School.

The two-day seminar was held to set the stage for school programming and to determine possible research projects which might be reported at the next school, to be held Sept. 21-23 in Kansas City.

Representatives of some 30 machinery, feed and other firms were on hand to take part in the program, along with members of the Production School planning committee. Max Cooley, Hoffman-Taff, Inc., Springfield, Mo., is chairman of the planning committee, and Eric Carlson, Ralston Purina Co., St. Louis, heads the research committee.

Research Projects

Many of the machinery men outlined research projects which their firms were volunteering to conduct or sponsor, and some of the feed men and others on the program described some of the principal problems which feed production men face in ingredient preparation and mixing. Some attention also was given to materials handling in connection with these processes.

Lloyd Larson, president of Feed Production School, Inc., the non-profit corporation which now sponsors the school, cited the value of seminars such as the recent two-day meeting and said that future progress of the school will depend on the type of interest and cooperation shown at the seminar. He pointed out that some of the research ideas presented probably will be used at later schools as well as at the 1960 school. It also was pointed out that program features other than the research reports will be a major part of the school.

Preliminary plans for a "two-level" program at the next school were discussed. Discussions at one level might be of a rather technical nature, for engineers and others, while other discussions would be aimed at providing information on day-to-day problems at the operating level.

Mr. Carlson outlined possible areas of research in connection with ingredient preparation and mixing, plus certain handling functions. He emphasized that there are two basic steps of research required to attain the "whole truth" — determining causes for problems and then elimination of problems by eliminating causes of the problems.

In addition to spelling out possible research projects, some of the seminar participants outlined production information needs and described possible speaking or discussion presentations at the school.

Many of the seminar presentations reflected the ways in which feed production is becoming a more exacting science as well as an art, and they also called attention to both problems and opportunities for improvements through methods, machines and better management of operations.

Committee members and school officials present for the seminar were: Max Cooley, Hoffman-Taff, Inc., Springfiield, Mo., chairman; Art Saalfield, the Quaker Oats Co., Sherman, Texas; C. E. Swick, Kent Feeds, Muscatine, Iowa; Eric Carlson, Ralston Purina Co., St. Louis; H. Pfost, representing Dr. J. A. Shellenberger, Kansas State University; Phil Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa; Larry Alley, Pay Way Feed Mills, Kansas City; Robert Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind.; Lloyd Larson and John Wessman, Feed Production School, Inc.; Jerry Karstens, Feed Age, Chicago, and Roger Berglund, Feedstuffs, Minneapolis.

Subjects Discussed

Subjects of discussions presented at the seminar provide an indication of the possible research projects and discussion topics considered at the seminar:

Feed production problems, Will Brooks, Illinois Farm Supply Co.; fine grinding, Robert Fredrikson, Strong-Scott Mfg. Co.; feed processing units, Richard E. Miller, Barnard & Leas Mfg. Co.; role of production research, Eric Carlson; particle sizing by hammermill method, John E. Hayhoe, Jacobson Machine Works; research on capacities and grinding qualities of hammermills, G. F. Thomas, Prater Pulverizer Co.; roller mill size reduction and fines in relation to moisture content and roller condition, Harold Roskamp, Roskamp Huller Mfg. Co.; tracer techniques in mixing, E. Patrick Shea, Midwest Research Institute; materials handling, Jim McKillip, Jr., Universal Hoist Co.; production and materials control system, Al Bohl, Wolf Management Engineering Co.; gelatinization of starches, research project being con-

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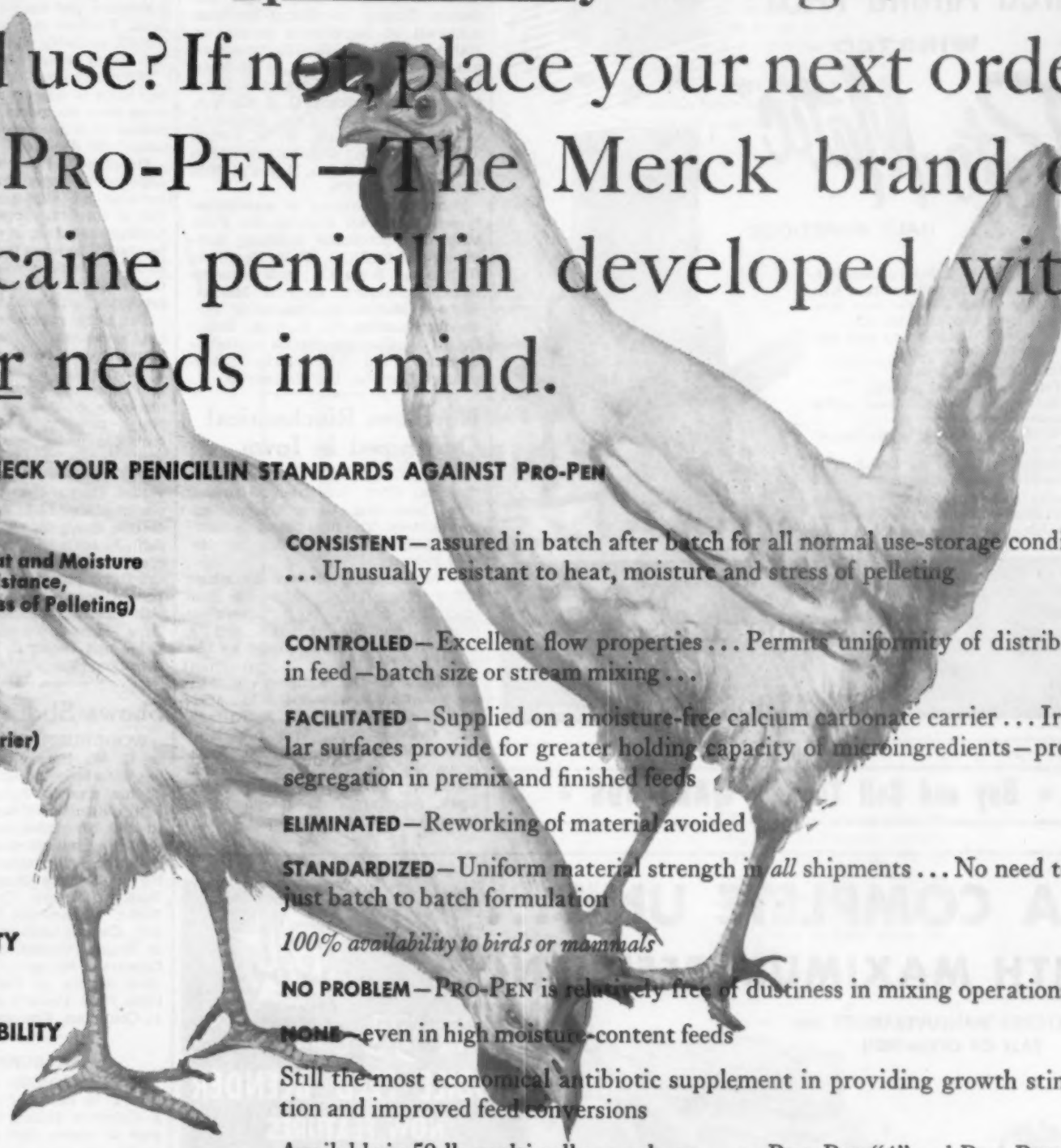

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AVAILABILITY	*100% availability to birds or mammals*
DUSTINESS	**NO PROBLEM**—PRO-PEN is relatively free of dustiness in mixing operations
INCOMPATIBILITY	**NONE**—even in high moisture-content feeds
ECONOMY	Still the most economical antibiotic supplement in providing growth stimulation and improved feed conversions
SUPPLY	Available in 50-lb. multiwall paper bags ... as PRO-PEN "4" and PRO-PEN with Vitamin B_{12} "2:3" ... in 4 Kg. fiber drums as PRO-PEN "50%"

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tinued by Wenger Mixer Mfg. Co.; pellet mill die plating to extend die life, continuation of Procter & Gamble Co. research project; problems in reduction, compounding and mixing, S. Burton Lee, Hales & Hunter Co.

Grinding characteristics of size reduction units, horizontal batch mixer efficiency and materials handling from grinding equipment, discussed by Robert Stroup and associates of Sprout, Waldron & Co., Inc.; problems related to mixing, Robert Wornick, Chas. Pfizer & Co., Inc.; storage and flow of soft materials, discussed by Art Stegner, Butler Mfg. Co., and other members of a sub-committee; high speed finish blending and automatic liquid proportioning, two subjects discussed by Roy Stiger and Robert Stroup of Sprout-Waldron; dispersal of ingredients in mixing, Ralph Coho, Daffin Mfg. Co.; proposed mixing research project at K-State, Harris Clark, J. B. Ehrsam & Sons; feed mixing efficiency, G. A. Carlson, Strong-Scott Mfg. Co.; automatic weighing in batching, W. W. Evans, Toledo Scale Co.; drop-bottom ribbon mixers, Vernon Hayes, Hayes & Stolz Industrial Mfg. Co.

Automatic batching in warehouse-type plants, Phil Murray, the Pillsbury Co.; automatic batching techniques and facilities, W. W. Hamilton, Richardson Scale Co.; mill management techniques, Richard Muther, Richard Muther & Associates; materials handling, L. E. Cox, Bemis Bro. Bag Co.; continuous materials assembly, Paul Coffman, Omega Machinery Division, BIF Industries.

Northern Biochemical Organized in Iowa

SHELDON, IOWA—Northern Biochemical Corp. has been organized here, according to ar recent announcement. The firm presently markets fermentation products to the feed industry.

A fermentation product for silage and a fermentation product for livestock and poultry, both "known to produce multiple enzymes and a growth factor," are featured by the firm.

Officers of the company include: Dr. Stanford J. Wilson, D.V.M., Adrian, Minn., president; H. E. Kistner, Sr., Omaha, Neb., vice president; Harold Kistner, Jr., Sheldon, Iowa, executive vice president and general manager; Peter Robinet, Hospers, Iowa, secretary, and Joseph Bloes, treasurer and plant foreman.

North Dakota Turkey Growers Told to Up Operation Efficiency

COOPERSTOWN, N.D. — Turkey growers have responsibilities in the over-all turkey industry if they plan to survive, Dr. Robert Berg, extension poultryman from the University of Minnesota, told 125 turkey growers attending the North Dakota Turkey Federation's annual convention here recently.

He suggested that turkey growers may be "barking up the wrong tree" if they expect the consumer to buy more turkey because of more income. His theory was that the level of food purchased per capita has reached a peak. Further increase of consumer income probably will be spent in buying luxury items, he noted.

"Our only hope for increase in turkey sales to consumers probably will come from an increase in population, rather than increased spendable income," he declared.

He suggested that each grower reappraise his operations in order to increase his efficiency of operation. One of the first spots to check in the feeding operation is wastage of feed, he stated. In most feeding operations, he said, the feed wasted is so much that it adds materially to the cost of producing a pound of turkey.

Dr. Berg suggested that the day may come when "feed will again be known for its feed value rather than a carrier of medication." He also told the group to watch the developments in plastics as a building material, pointing out the growth of tomatoes under plastic in the Midwest and adding — "Why not turkeys?"

New officers elected at the meeting were: Chester Ahlin, president, Oakes; Harry Martin, first vice president, Mohall; B. J. Duke, second vice president, Bismarck; Lloyd Nelson, third vice president, Valley City; Albert Akason, director, Fargo; Anno Van Oosting, director, Hensler; Art Lanz, secretary-treasurer, Devils Lake, and Irving J. Mork, executive secretary, Fargo.

Shows Slides of Russia

WOODBURN, IND.—E. W. Bohren of E. W. Bohren, Inc., Woodburn, has been busy recently showing slides of his trip to Russia. Among the Pennsylvania feed dealers and others to see his slides were the Northwestern Pennsylvania Feed Dealers Assn., Southwestern Pennsylvania Feed Dealers Assn., Canonsburg-Houston Rotary Club on Farmers Night, Waynesburg Milling, McKeesport Kiwanis Club and a joint meeting of Mount Pleasant service clubs and farmers of the area. Ohioans had this slide lecture at Defiance, Norwalk, Ohio Feed Dealers Assn. convention at Columbus, Fostoria and Payne.

W. M. BUNCE DIES

FILER, IDAHO — William M. Bunce, 78, manager of Filer Elevator & Colorado Milling Co. here for the past 42 years, died at his home recently. He retired from active operation of the firm in 1954.

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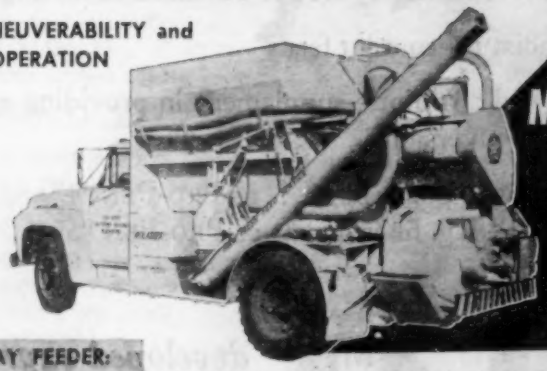

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B&L's modern mobile feed plant grinds, mixes, and blends **any** formula feed right at the barn door and offers on-the-spot bulk delivery of feeds with **both** air and hydraulically positioned auger discharge. Exclusive design makes possible highly profitable **one-man** operation. B&L's high-speed molasses blending plus its dual mixing system produce complete feeds that satisfy exacting quality standards.

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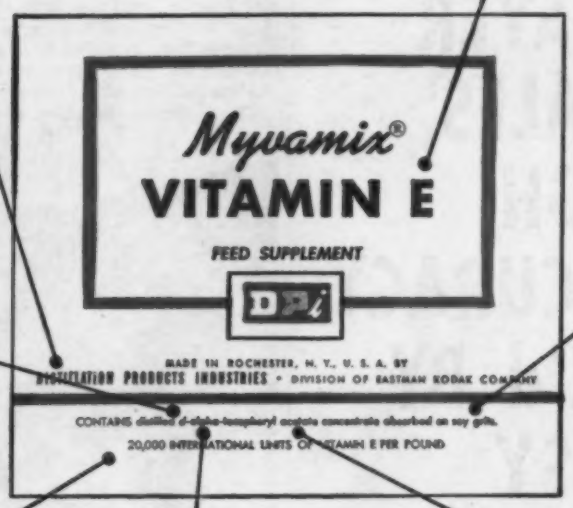
Vitamin E is considered by many authorities to be an essential part of a nutritionally complete diet for chickens, turkeys, dogs, and other animals. We will be happy to send literature references on request.

The "d" means the vitamin E in *Myvamix Vitamin E Feed Supplement* is the same stereoisomer that appears in nature. 1 milligram of *d*-alpha-tocopheryl acetate is equivalent to 1.36 International Units of Vitamin E.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20,000 INTERNATIONAL UNITS OF VITAMIN E PER POUND

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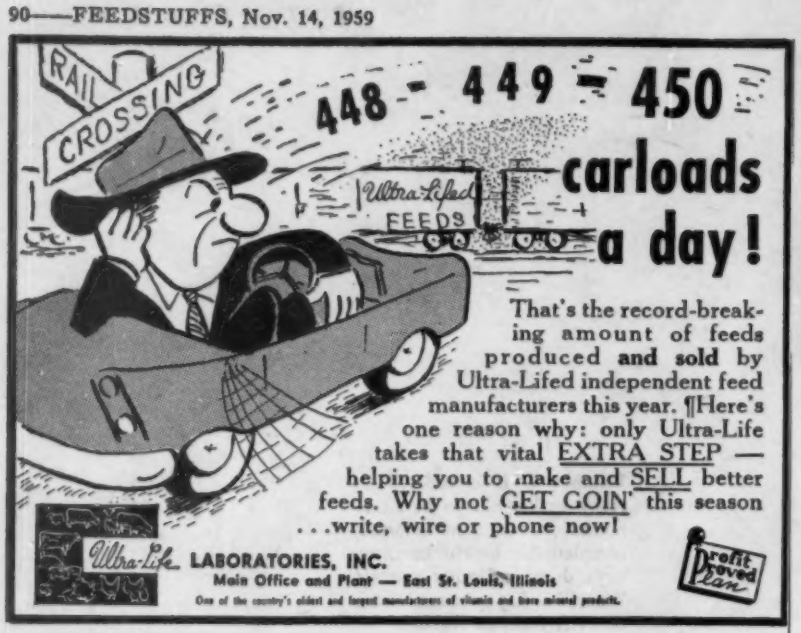
With *Myvamix*, you know exactly how much vitamin E is in your feed. There's a sure 20,000 International Units of Vitamin E per pound. The cost is only a few dimes per ton of feed.

There are at least seven tocopherols which have some vitamin E activity. The most effective biologically is "alpha." That's what is in *Myvamix Vitamin E Feed Supplement*. (Only 10 to 15% of the tocopherols in corn is "alpha"—the rest is "gamma," one of the least effective of all.)

The "acetate" means that the vitamin E in *Myvamix* is really stable. Tests show no loss of potency even after storage in finished feeds for six months at 100 F. The full potency you put in the feed is there when the feed is fed.



carloads a day!

That's the record-breaking amount of feeds produced **and sold** by Ultra-Lifed independent feed manufacturers this year. ¶Here's one reason why: only Ultra-Life takes that vital EXTRA STEP — helping you to make and SELL better feeds. Why not GET GOIN' this season . . .write, wire or phone now!

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One of the country's oldest and largest manufacturers of vitamin and trace mineral products.

Profit Proved Plan

BULK INSTALLATIONS—This view of the Wampler Feed & Seed Co., Inc., mill at Harrisonburg, Va., shows the raw ingredient storage tanks (right) and the new bulk loading setup. The firm has a 12-ton Sprout-Waldron pneumatic bulk truck with four compartments of three tons each.

Half of Feed Company Output Sold Through Contract Plans

By Al P. Nelson
Feedstuffs Special Writer

Last year contract feeders of broilers and turkeys bought 50% of the output of the feed mill of the Wampler Feed & Seed Co., Inc., Harrisonburg, Va. The feed mill, geared to 20 tons per hour in a nine hour day, produces about 30,000 tons of feed annually, 50% of which is pelleted.

The Wampler firm has been doing contract feeding with broiler and turkey growers for about 25 years, states Charles W. Wampler, Jr., who has charge of the feed mill. Only a small percentage of the contract feed volume goes to broiler growers. Turkey growers take most of the contract feed.

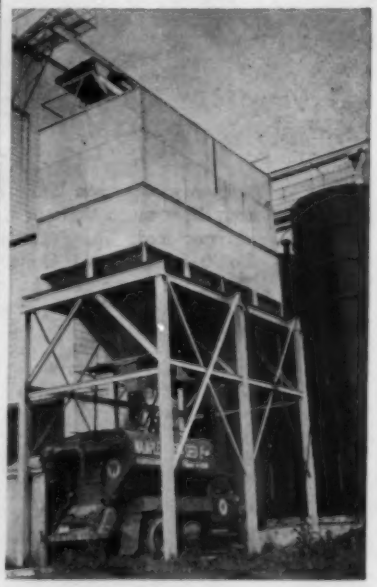
There are not many large turkey flocks in the area, however, but there are many small ones from 2,000 to 5,000 birds.

WEIGH HOUSE—An employee of the Wampler Feed & Seed Co., Inc., Harrisonburg, Va., is shown operating a Toledo truck scale in the bulk weigh house. The scale is located under eight elevated bins, each of which holds 12 tons.

Wampler's actually does not sign a contract with a feeder, reports Mr. Wampler. The management explains the contract to the grower and a verbal agreement is made. Until 1956 the feed firm had used only one type of turkey contract, the 5%, 60/40 settlement. This meant that 5% of the gross receipts were guaranteed to the grower. This was added in the account as expense. After this, if there was any profit, the grower would get 60% and the feed firm, 40%.

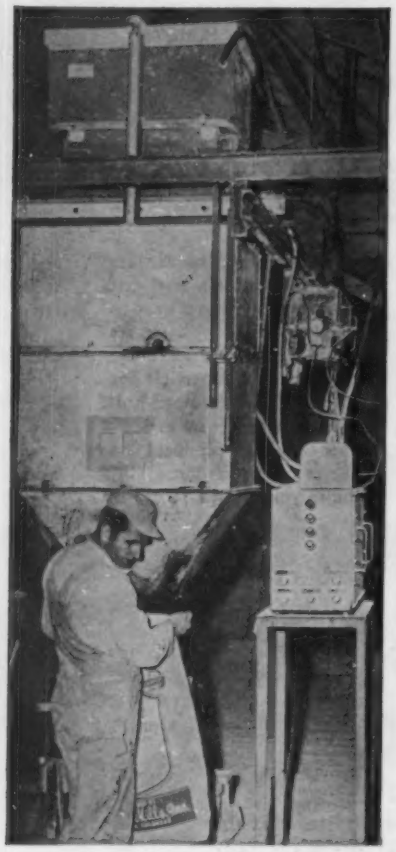
In 1956 the growers were offered an additional contract, a straight 80/20 settlement with no 5% guarantee. They could choose either the 80/20, or the 5%, 60/40 contract.

Then in 1957 the turkey contract was changed again. The grower received from 2 to 5% of the gross receipts, depending upon the contract



BULK LOADOUT—Bulk loadout equipment with bins overhead at the Wampler Feed & Seed Co., Inc., Harrisonburg, Va., are shown. The firm has eight elevated bins, each of which holds 12 tons.

TURKEY FEEDER—Shown is one of the turkey farms operated under feeding contracts with the Wampler Feed & Seed Co., Inc., Harrisonburg, Va. Contract feeding plans account for 50% of the firm's production.



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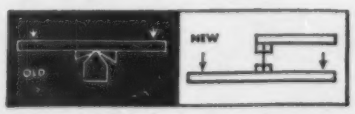

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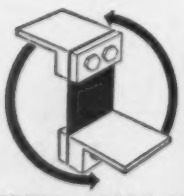

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loss. If a profit was realized, the grower received 70%, and the feed company, 30%.

In a letter to growers at the time of the changed contract, the Wampler firm said, "We believe that this change in contract is fair to you and us. If the contract makes a profit you get a larger share than before. If there is a reasonable loss you will get the same payment. In case of a heavy loss you will receive less."

Contract Schedule

Broiler flocks on contract feed schedules with Wampler's run from 2,500 to 10,000 birds. New broiler contract schedules issued Aug. 1, 1959 are as follows:

"If account loses 2¢ per pound, grower receives 3% of gross receipts; 1.50-1.99¢, 4% of gross receipts; 1.00-1.49¢, 5% of gross receipts; .50-.99¢, 6% of gross receipts; .49¢ to and including break-even, 7% of gross receipts.

"From break-even to .49¢ per pound profit, grower receives 8% of gross receipts; .50-.99¢, 8½% of gross receipts; 1.00-1.49¢, 9% of gross receipts; 1.50-1.99¢, 9½% of gross receipts; from 2¢ and up, 10% of gross receipts."

On this contract, chicks are marked up 1¢ and contract price of feed is 40¢ per bag over sale price. If contract grower wishes to use bulk feed and store it in a metal tank of 5-6 tons, purchased from Wampler's, he gets a 20¢ cwt. discount. On storage tank purchase deals he gets 10¢ of this 20¢ bulk allowance to pay toward his tank.

Contract feeding has its problems, points out Mr. Wampler, such as depressed broiler prices and other "ups and downs." However, he believes contract feeding will continue in turkeys and broilers, possibly to a lesser degree than in the past.

Wampler's has several service men who visit broiler and turkey growers under contract once a week or every two weeks, whichever is needed. These service men review feeding and flock conditions, and confer with growers on management problems.

"Contract feeders are getting more efficient," says Mr. Wampler. "They have to."

Bulk Handling

The installation of a special bulk storage and load-out arrangement for finished feeds two years ago has facilitated the handling of feed at this plant. The storage section for bulk has eight elevated bins, each of which holds 12 tons. They are mounted over a 60 ft. Toledo scale.

Finished feed is brought from the mill to the bulk storage area by means of a belt conveyor and spout. The bulk bin storage setup was planned for future expansion. Extra bins can be added as needed.

The Wampler firm also has four large silos for storing ingredients which are not free-flowing, such as alfalfa meal, middlings, peanut meal, etc. These ingredients are brought from the storage silos into the mill by auger.

The feed firm has a 12-ton Sprout-Waldron pneumatic bulk truck with four compartments of three tons each. In addition, some customers get contract bulk haulers who will deliver feed from the mill to the farm for $2-3 per ton within a 25 mile radius. All feed is priced delivered to the farm. If the customer hauls it himself he gets a $2 per ton discount.

A vital factor in the Wampler contract feed program is that the family owns two hatcheries in Harrisonburg, and also a dressing plant. The hatcheries are operated by Charles W. Wampler, Sr., and his son, Bill; the dressing plant by a son-in-law, Harry Custer. Thus the Wampler firm can provide the chicks, the feed and also the market for the poultry which its customers raise.

"A large portion of our feed business is tied in with our contract feeding program," says Mr. Wampler. "The feed production program is coordinated so that we can get steady output many months of the year, and also be able to take care of customers who are not in contract feeding. At the present time we are pricing our feed at a very small margin of profit, to try to encourage feeders to buy their feed and finance their own operations. Human nature being as it is, most growers who have something to lose will work harder to make a profit."

New Installations

DES MOINES, IOWA—Hot Spot Detector, Inc., Des Moines, has announced 47 recent installations of Hot Spot equipment in 16 states and Finland.

Distribution of the installations is as follows: Texas, 2; Michigan, 1; Iowa, 1; Nebraska, 8; Finland, 1; Missouri, 2; Illinois, 8; Ohio, 4; Kansas, 4; Georgia, 1; Arkansas, 3; Colorado, 2; Indiana, 3; Minnesota, 4; Mississippi, 1; North Dakota, 1, and Oklahoma, 1.

Creep Feeding Lambs Can Increase Profits

ST. PAUL — Sheepmen can increase profits by creep feeding lambs on grain and switching to earlier lambing — before Feb. 20 — so the fast-growing lambs reach market weight by mid-June when prices hit their peak.

Dr. R. M. Jordan, University of Minnesota livestock scientist, recently compared four different feeding systems for lambs and ewes over a 62-day period. Most economical gains, he found, came from creep feeding lambs a mixture of nine parts grain and one part soybean meal, with ewes fed an all-roughage diet.

These lambs gained .61 lb. per day, at a feed cost of $9.91 per 100 lb. gain—lowest of all systems compared. A group in which lambs were creep-fed and ewes received grain did gain a bit faster—.64 lb. per day—but feed cost went up to $11.24.

Daily gain averaged .46 lb. per day where ewes received grain and lambs were not creep-fed, and only .36 for a lot in which neither practice was followed. Both lots also had feed costs over $11 per 100 lb. gain.

Dr. Jordan concludes that if ewes get plenty of good quality roughage, it's questionable whether they need grain. Where he fed grain to ewes and not to lambs, increases that did occur most likely resulted from lambs eating grain intended for their mothers. Besides, grain-feeding ewes increased milk production very little. So a farmer with limited grain should reserve it for the lambs, he says.

Since giving both ewes and lambs grain brought the most rapid gains, this practice is best if it means hitting a higher price. But for this to work out, Dr. Jordan says, lambs must be born by late February, or they won't be ready for market in June.

If lambs are born in mid-March or April, it may be most economical to creep-feed the lambs until pasture is ready and finish the lambs in dry lot in the fall.

Advertisement *Advertisement*

Newcastle "Breaks" After Vaccinations Are Scaring the Industry!

Water vaccination is still the best method of mass immunization, says scientist. Vaccine strains too weak to do the job are causing the trouble

● THE WATER method of mass immunization against Newcastle disease—one of the easiest, most effective ever developed—frequently is blamed by poultrymen as the cause of Newcastle Disease breaks in vaccinated flocks.

Poultrymen would do well to take a long, critical look at the vaccine strain being used. It's very likely to be a classic example of a "boy being sent to do a man's job." Scientific studies have proved again and again that the live virus in Newcastle Disease vaccines must hit a happy balance—strong enough to confer immunity in birds, yet mild enough to keep reaction well out of the danger zone.

Research work has proved that the B¹ strain of Newcastle Disease virus just does not have the immunizing power necessary to do a uniformly satisfactory job in the drinking water. It's a case where the *water method is right* but the vaccine strain is wrong. Here's why:

Limitations of B¹ Strain

Many mass-applied Newcastle Disease vaccines on the market today are of the B¹ Strain. The B¹ Strain can immunize through the drinking water *only* if the treated water is consumed quickly and the vaccine has a very high titre so that it can stand extreme dilution. Birds not drinking for some time after the water has been treated with vaccine will consume water in which the virus has dissipated and lost its infecting power.

The best indicator of generalized immunity, high blood titres produced within the birds, cannot be demonstrated in all the birds infected with the B¹ Strain.

Only one mild strain of Newcastle vaccines consistently produces the *high* blood titres and durable immunity sought in mass application.

That strain is the Vipol 717 Strain, also known as the LaSota Strain. It is manufactured exclusively by Vineland Poultry Laboratories, Vineland, N.J.

By Tevis M. Goldhaft, D.V.M.

Potency of LaSota Strain

The Vipol 717 Strain retains its power to immunize for periods as long as 24 hours and more after it has been added to poultry drinking water. Because of the original high titre of the virus in the vaccine itself, it can stand dilutions in the drinking water well beyond recommended levels.

This strain has an unlimited infecting potential that continues through the vaccination reaction period and insures the immunity of a maximum number of susceptible birds. Revaccinations on young chicks with Vipol 717 are reduced to the minimum and are necessary *only* if the birds are carrying parental immunity at the time the vaccine is first given.

On the other hand, revaccinations with the B¹ Strain are necessary because this strain of virus lacks infecting potential among those susceptible birds that do not receive a dose of vaccine at the time of vaccination.

For nearly four years now, researchers who produce the Vipol 717 Strain of vaccines have been challenging the industry with this statement: "The Vipol 717 Strain of Newcastle Disease Vaccine produces a higher titre and a more durable immunity than the B¹ Strain." This challenge was carried in nation-wide advertisements for many months. To date, not a single contradiction has been received from any vaccine manufacturer, pathologist, breeder, hatcheryman or grower.

Merits of Mass Vaccination

The mass application of Newcastle vaccine through the drinking water has obvious advantages. It is a tremendous labor saver. It eliminates the stress to birds handled individually. And, with the positive immunity provided by the Vipol 717 Strain of Vaccine—as opposed to the poor results often obtained with the B¹ Strain—there is no reason not to make use of the drinking water method.

Water application has one other advantage. Overdosage is not possible through the drinking water.

This is not true of the other methods of mass application, the dusting or spraying methods. Water vaccination sets up a protective infection in the upper respiratory tract.

Disadvantage of Spray, Dust

When birds are sprayed or dusted, infection is produced in both the upper and the lower respiratory tracts. It is when vaccines are inhaled into the lower respiratory tract and deep into the lungs, and possibly into the air sacs, that overdosage can occur. Excessive mortality can result, particularly when birds are vaccinated at a young age.

Vaccination through the drinking water is the most efficient, economical and effective mass method of immunizing poultry against Newcastle Disease—providing the Vipol 717 (LaSota Strain) is used.

Remember that the LaSota Strain is used by Vineland Poultry Laboratories exclusively as the basis for its Vipol 717 Vaccines. See your nearest dealer or Vineland state distributor, or get in touch with Vineland Poultry Laboratories, Vineland, N.J., or 4068 Broadway Place, Los Angeles 37, Cal., for either the product desired or more detailed information.

Feed Contributes 13% of GMI Sales

MINNEAPOLIS — Formula feeds recently have accounted for 13% of total sales of General Mills, Inc., it was reported by Charles H. Bell, president, in response to a stockholder's question during the firm's stockholders' meeting held by way of a nation-wide, closed-circuit television system.

In answering the question Mr. Bell also noted that package foods contributed 34% to total sales; flour, 42%, and chemicals and mechanical products, 11%.

(The General Mills annual report stated that total sales for the 1958-59 fiscal year were $545,998,000. This would indicate, based on the 13% figure, that the annual feed sales volume is nearly $71 million.)

The television system linked seven cities throughout the U.S.—Minneapolis, New York, Boston, Buffalo, Chicago, San Francisco and Los Angeles—where stockholders were gathered to hear company executives report on the status of the firm, and to ask questions by way of audio connections.

Gerald S. Kennedy, chairman of the board, presided at New York, while Mr. Bell headed the Minneapolis meeting.

One stockholder, Phillip Getty, a New York cab driver, asked Mr. Kennedy what he (Mr. Getty) had gained from the recent share split which saw his holdings boosted from the original purchase of five to 15. Mr. Kennedy said: "The main thing you gained was marketability. More people are going to be interested in General Mills, because since this split we have added a thousand new share owners."

Another stockholder, Lewis Gilbert, wanted to know what percentage of stock is owned by officers and directors, the amount the largest stockholder owns and the average holding of shares per owner in the company. Called upon to answer the question was GMI's R. E. Nutting, who explained: "Officers and directors of General Mills own slightly more than 4% of the outstanding common stock and less than 1% of the preferred stock. The largest holder of preferred owns about 6% of the total, whereas the largest holder of common owns between 2% aand 3%. When it comes to the average holding of preferred, this is about 90 shares. Approximately 575 shares are owned by the average holder of common."

Shippers Meeting

KANSAS CITY, MO.—Plans are being laid for the 123rd meeting of the Trans-Missouri-Kansas Shippers Board Dec. 3-4 at the Hotel President here. Reduced fare certificates may be obtained from the board secretary, 206 KCS Building, here. Hotel reservations should be made with the Hotel President.

Prater Names Western Iowa Representative

CHICAGO—Prater Pulverizer Co., Chicago, has appointed Patty Mill Equipment Co., headed by Richard M. Patty, Marshalltown, Iowa, to the territory of Iowa west of Highway 69.

R. M. Patty

Mr. Patty was a feed dealer for 10 years in Perry, Iowa, and served another 10 years as a feed salesman, out of Marshalltown, for a feed manufacturer. He attended Central College in Pella, Iowa, is married and has two children.

Eli Lilly Produces Beef Cattle Movie

INDIANAPOLIS—Eli Lilly & Co. announces that feed manufacturers can now provide their cattle feeding customers with an 11,000-mile tour of the cattle country in 28 minutes by showing a new movie produced by Lilly.

The newsreel-type film entitled, "Beef News Round-up," features information on beef cattle research, feedlot mechanization, tricks used by feeders to boost gains and cut costs and an economic look at what's ahead for the cattle industry.

The film includes a visit to the U.S. Department of Agriculture Range Station near Miles City, Mont., for a summary of 35 years' research on production testing and breeding stock selection.

Dr. Wise Burroughs, cattle nutritionist, summarizes five years of experimental results with stilbestrol during a visit to Cattle Feeders Day at Iowa State University.

An Illinois farmer shows his "merry-go-round" method of feeding. For a look at a large feeding operation, "Beef News Round-up" takes its viewers to Greeley, Colo., for a visit to the 33,000-head Monfort feedlots.

Feed manufacturers may schedule this new film by addressing requests to "Beef News Round-up," Agricultural & Industrial products division, Eli Lilly & Co., P.O. Box 814, Indianapolis 6, Ind. Feed dealers should request the film through their manufacturers.

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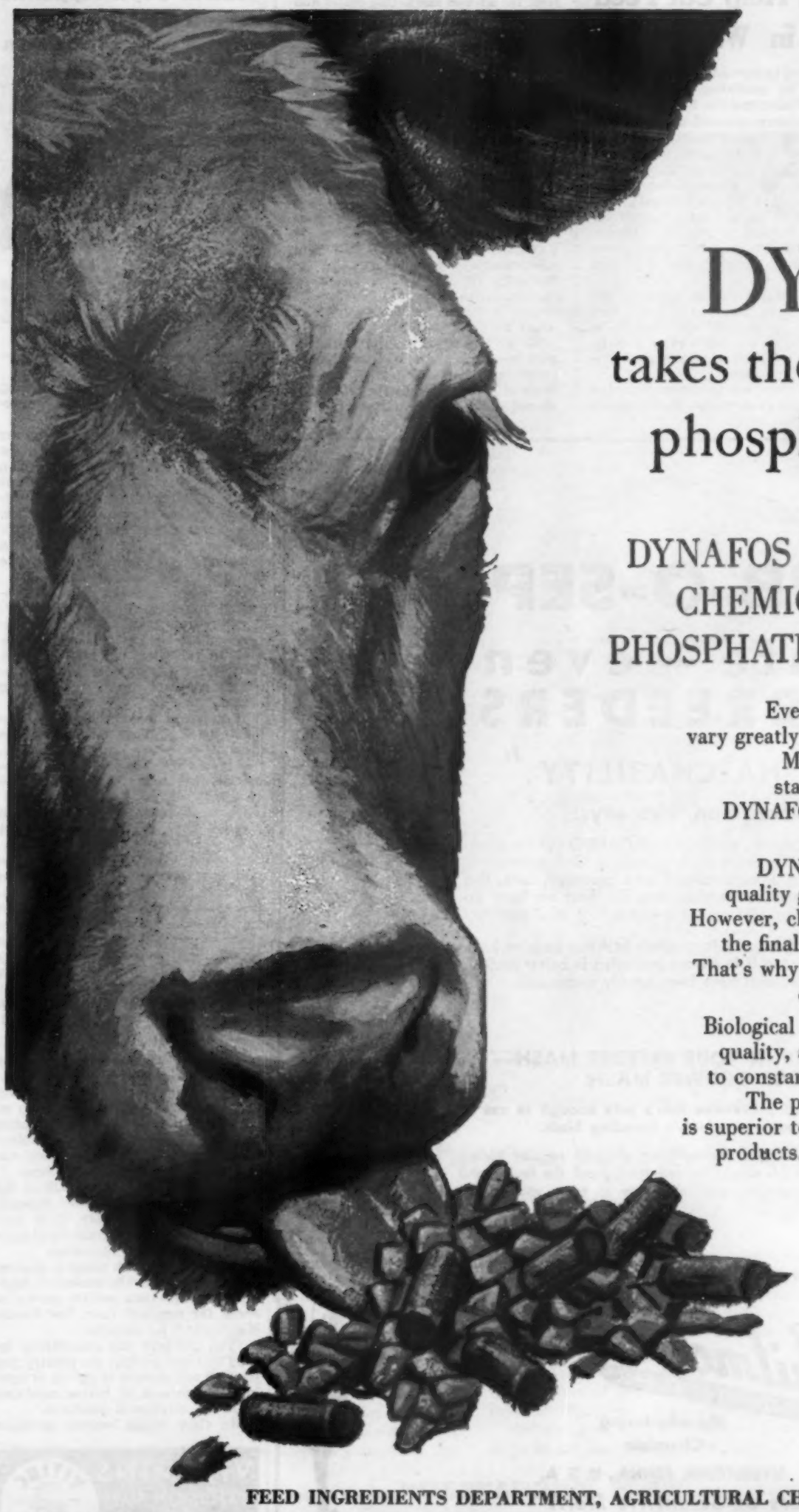

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Light, Heat, Heredity Can Help Cut Feed Costs, Poultrymen Told in Washington

PULLMAN, WASH. — Light, heat and heredity can help cut poultry feed costs, a Washington State University scientist said here recently.

Dr. James McGinnis, poultry researcher and chairman of the university's department of poultry science, made this point in addressing WSU's second annual Poultrymen's Institute.

Over 100 poultry servicemen and chicken, egg and turkey producers from California, Idaho, Montana, Oregon, Washington and British Columbia registered.

Dr. McGinnis reviewed recent research aimed at getting more eggs or meat per pound of feed.

He said that continuous light on broilers will increase growth rate by nearly half a pound per bird at market age.

For layers, feed requirements can be reduced by one-half pound per dozen eggs by providing artificial heat during winter months, he said.

Dr. McGinnis pointed out that heredity is an important factor in efficient feed use by both layers and broilers. Generally speaking, the more rapidly growing or producing animal will convert a higher percentage of feed into meat or eggs, he declared. For this reason, he said, it is important to use strains of birds with a history of rapid growth and high egg production.

Dr. McGinnis pointed out that use of pelleted or crumbled feed also will step up the growth rate. Results to date indicate the more rapid growth is due primarily to increased feed consumption, he said.

The poultry scientist also reported that males grow faster than females and produce more meat per pound of feed. He advised marketing males and females at different ages as males reach mature weight sooner.

Disease Control

Dr. E. B. Patterson, Terre Haute, Ind., poultry expert for Chas. Pfizer & Co., Inc., provided pointers on a sound disease control program for poultrymen.

He warned producers against returning show and contest birds to the flock and against allowing visitors free-run of the premises.

Dr. Patterson said poultry that have been exhibited at shows where a number of birds from different areas compete provide excellent opportunity for the spread of disease and parasites. If such birds are returned to the home flock, they could infect an entire flock, he said.

He advised requiring visitors to the premises to follow a strict sanitation program such as disinfecting shoes or boots. If persons handle the birds, they should scrub their hands thoroughly with soap and water before handling other birds or before leaving the premises, he said.

Dr. Patterson also discussed a long list of other measures to prevent or control disease. He urged poultrymen to keep buildings and equipment clean, to purchase chicks from reliable sources, to control flies, lice, rats, mites and ticks, use preventive and control medication and call in a veterinarian immediately if trouble develops in the flock.

Don Womacks, Des Moines, discussed management of growing layers. Mr. Womacks, field service supervisor for Hy-Line Poultry Farms, said an inherited potential of 90% rate of lay cannot be realized without proper care during the growing period.

"Haphazard management and bargain-type ideas have no place in the growing period, or any other time. Short cuts that lower production potential are always very costly," he said.

He urged an attitude of "How can I spend a few pennies more and get nickels and dimes in return?"

A penny spent for pox vaccine, he said, may, on an average, return two cents. But it may head off a disastrous loss too, thus having insurance value, he added. Two or three minutes more time per bird in the growing period may head off stress factors such as over-heating, chilling, water starvation, wet litter troubles, etc. This extra time, he said, may return an extra dozen or two eggs per bird.

Marketing

"No one ever bought a business based on week-end sales," Vernon L. Cary, Boise, director of advertising and public relations for a group of chain food stores, said. He cautioned marketers against featuring poultry at low prices on weekends then upping the price for week-day sales.

Addressing much of his talk to the problem of competition from shipped-in poultry products, Mr. Cary said Pacific Northwest producers and marketers have one big advantage.

"We can sell fresh poultry, poultry that is brought to the consumers faster and better than poultry grown in areas far removed from the Pacific Northwest," he declared.

"You can beat this competitive inroad by insisting that the poultry you produce and process is moved to markets faster and in better condition than the shipped-in products."

Mr. Cary, whose concern produces

Central Soya Appoints Parrott as Director

FORT WAYNE, IND.—Robert B. Parrott, executive vice president, Central Soya Co., Inc., was named to that organization's board of directors at the company's Nov. 4 shareholders' meeting in Fort Wayne, Ind.

R. B. Parrott

Mr. Parrott has administrative responsibility for soybean purchasing, soybean meal and oil sales, grain merchandising and the company's marine and truck transportation operations.

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"CARB-O-SEP has enabled us to produce healthier birds at lower costs. We can recommend it to anyone interested in better profits." Reports from other breeders have been equally enthusiastic.

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Bagpak Division **INTERNATIONAL PAPER** New York 17, N.Y.

as well as retails poultry, stressed the importance of appetite appeal, refrigeration, proper packaging and display.

The advertising expert said the industry has made great strides in making turkey year-round menu fare instead of a holiday feature. Smaller birds and quarter roasts, he said, have helped turkeys compete with the small cuts of other meats such as loin- and pot-roasts.

Light and Heat

Dr. W. O. Wilson, poultry physiologist, University of California at Davis, reviewed research on the effect of light, heat and humidity on poultry production.

He said poultry scientists used to think that 14 hours of light was all that chickens required for growth. Researchers now recognize that many factors are involved in the response of birds to light. These include age, hours of light, light intensity, frequency of light, previous light exposures and breeding.

"We have had white leghorns that will lay in complete darkness at the University of California," he reported. He said research indicates that with chickens there is no "all or none" response to light. Turkeys, however, appear to need at least 12 hours of light. When days are shorter than 12 hours in length, we cannot expect any eggs at all from turkeys, he said.

Dr. Wilson said researchers have also found a sex difference in light requirement. The female requires more light than the male.

In discussing research on temperature, Dr. Wilson said one of the important findings is the fact that birds are able to store heat during the day and lose it at night. Scientists have been surprised to find that birds given a fluctuating temperature lay more eggs than those given constant temperature, he added.

WSU's new $300,000 12-building poultry plant for research and teaching was officially opened to public view during the institute.

Dr. McGinnis explained that the plant includes seven new buildings and five old buildings. The old buildings were moved from the site where the university's new plant sciences building is under contruction, he said.

The 45,000 sq. ft. of total space for teaching and research purposes is designed for use as large or small units, depending on need.

The new setup includes facilities for raising pullet chicks, broilers, and laying hens, research laboratories, processing rooms for efficient small-scale operations for research and teaching, storage, classroom and office buildings, a brooder house and a feed warehouse.

INCORPORATED

ROUNDUP, MONT. — Hoegele, Inc., has filed articles of incorporation to do business as a grain elevator firm, listing $300,000 capitalization and these directors: A. J. Hoegele of Roundup, and M. E. Soricone and C. E. Beven of Billings.

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Can Lose on Egg Premium Deal, Says College Poultryman

AMES, IOWA—"Poultrymen actually may lose money by accepting premium egg payments for buying dealers' all-mash rations," Iowa State University extension poultryman Paul Walther declared recently.

This is not always true, Mr. Walther said in a college news release, but the producer should understand all aspects of the problem before he accepts a premium egg-payment deal. "Not all of the best feeds are the most high-priced feeds," he added.

Mr. Walther said he began studying this problem last fall after "receiving many inquiries from producers who had been approached by feed dealers offering various egg premiums or by hatcherymen requiring the feeding of a special feed for hatchery flocks."

Mr. Walther said he found:

"Egg premiums sometimes do not pay for the increased price of the feed. One producer was offered a 2¢-per-dozen premium on his eggs if he would buy a dealer's feed at a $9 per ton increase over his current feed cost. It was found the producer would need a 2½¢ increase in egg prices to break even. He also found that hens laying an average of 216 eggs per year will require a 1¢ egg premium to break even with a $4 ton increase in feed cost. This was assuming that the farmer's regular feed and the dealer's feed had equal feeding value.

"The number of eggs received may not pay for the increased feed costs. A poultryman must know the number of egg dozens his hens are producing per 100 pounds of feed before he can determine whether his egg premium deal is valid. As an example, if a producer gets 20 dozen eggs for each 100 pounds of feed he uses, he'll need a premium of 5¢ per dozen to pay for a feed costing $1 per hundred more.

"The quality of feeding value of feeds isn't affected by the price. The 31 records of the 1959 Iowa Demonstration Flock cooperators were divided into two groups, those with higher-than-average production and those with lower-than-average production. It was found that the average feed cost per 100 pounds in these two groups was almost identical. Apparently the price of the feed was not a reflection of its quality. As expected, the low-production group had a higher feed cost per dozen eggs.

"A smaller quantity of high-priced feed is required to produce one dozen eggs. The cooperators' records were divided into groups of below-average feed cost and above-average feed cost. It was found that a slightly higher production was received from the above-average-cost feed and at a lower feed consumption per dozen eggs. However, the higher feed cost overshadowed the lower consumption, and resulted in a greater feed cost per dozen.

"High-priced feeds do tend to improve production, but often not enough to justify the increased price. The high-priced feed is used more efficiently by the hens, but the feed cost per dozen is the most important figure to justify.

"When considering an egg premium deal, the poultryman cannot always count on increased production to help him break even. If a farmer has any doubts on the program he can contact his county extension director."

Dominion Ag Meeting

OTTAWA — The Dominion Provincial Agricultural Conference will be held here Nov. 23 and 24.

Among the topics to be discussed will be the government's new deficiency payment plans for eggs and hogs. Observers from the U.S. Department of Agriculture, Washington, will attend the meeting.

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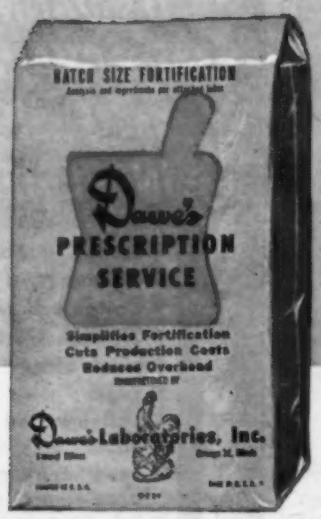

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WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7703—Bulk Delivery Unit

Bulk delivery of feed, grain or fertilizer with any type of truck is possible with the auger-equipped truck bodies offered by Knoedler Manufacturers, company literature claimed. The galvanized steel body is available with weather-tight cover, sack hauling space and a hydraulically operated boom auger to reach bins and feeders. Basic models are 12 ft. and 8 ft. lengths, with top box expansions

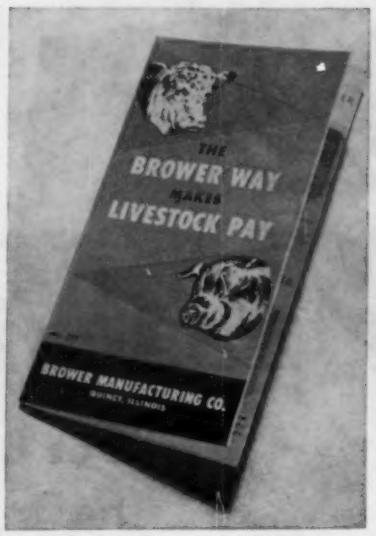
increasing capacity of each so that actual range of sizes is 2, 2½, 3, 4 and 5 tons, the company says. A "V-bin-in-box" construction keeps the body from twisting or bending under full load. Twin compartments permit hauling of different types of feeds. A "guillotine" shut-off system is available to allow either compartment to be unloaded at any time. All openings between augers are full size to prevent pressure build-up and let pellets flow freely. The hydraulic boom auger discharges up to 12 ft. away from the truck and will reach from shoulder-level heights up to 22 ft. above the ground when mounted on a typical 33 in. truck frame, company literature says. More information is available by checking No. 7703 on the coupon and mailing.

No. 7707—Injectable Iron Promotion

American Cyanamid Co. announces a special promotion designed to help dealers sell Pigdex, injectable iron for baby pig anemia, during the fall and winter. The company is making available aluminum castrating knives which dealers can offer free with each six (10 dose) vials of Pigdex sold or each 50 dose vial sold. Pigdex contains colloidal ferric oxide equivalent to 50 milligrams of iron per cc and recommended dosages provide necessary iron to make up for deficiencies and prevent anemia in baby pigs, the company says. For more information, check No. 7707 on the coupon and mail.

No. 7706—Hog Equipment Folder

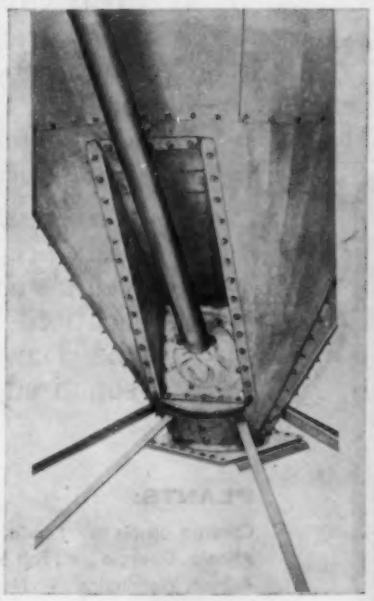
A hog equipment folder describing and illustrating the Brower Manufacturing Co. 1960 line has recently been issued. Printed in two colors, the folder includes data on many new items of equipment, the company says. The folder covers such new products as its line of hog feeders, farrowing crate, automatic hog waterer, baby pig creep feeders, baby pig watering cup, farrowing pen feeders, supplement feeders and others.



Copies of the folder can be obtained by checking No. 7706 on the coupon and mailing.

No. 7704—Bulk Feed Tank

Butler Manufacturing Co. announces a new line of "Bulk-O-Matic" feed tanks. The tanks have a "Live-Bottom-Action" hopper, which is available in both standard center, side draw-off tanks and the company's smooth wall tanks. According to company literature, there is no



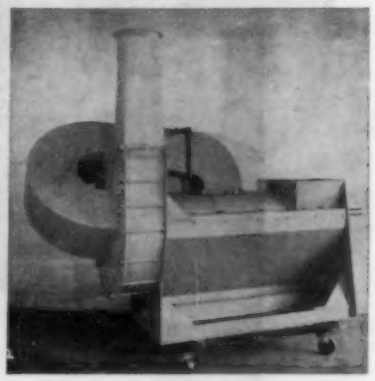
boot, and clean-out is fast and complete. The bulk tanks are available in 6 ft., 9 ft. and 12 ft. diameters, from 2 to 87 ton capacities. The auger is located in the hopper itself. The action of the auger, the company says, creates a live condition which keeps feed active and free flowing. For more information, check No. 7704 on the coupon and mail to this publication.

No. 7708—Folder on Feeders

A six-page folder on Jacobson Feeders is available for distribution from the Jacobson Machine Works, Inc. The folder contains information, specifications and photographs on the complete line of feeders for moving material into, through and out of feed and cereal mills, according to company literature. Items discussed include pit screw feeders, single and double chain drag feeders, low pit drag feeders, reciprocating feeders, rotary feeders, crusher feeders and the appropriate controls and devices used with them. For copies, check

No. 7705—Patent for Sheller

Bryant Engineering Co. has announced the acquisition of U.S. Patent No. 2898921 which covers the cleaning design of the company's line of corn shellers, including the



Bryant No. 40 illustrated. The patent is entitled "Corn Sheller Having an Aspirator Conduit." For more information about the company's corn shellers, check No. 7705 on the coupon and mail to this publication.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7671—Grain handling system, Dunbar Kapple, Inc.

No. 7672—Indicator unit, Richardson Scale Co.

No. 7673—Egg business record, L.

Send me information on the items marked:

- ☐ No. 7703—Bulk Delivery Unit
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- ☐ No. 7705—Patent for Sheller
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- ☐ No. 7707—Injectable Iron Promotion
- ☐ No. 7708—Folder on Feeders

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No. 7674 — Shredder - hammermill, Jacobson Machine Works.

No. 7675—Bulk delivery unit, Sudenga Industries.

No. 7676—Grain, seed dryer, A-C-E Supply & Equipment Co., Inc.

No. 7677—Automatic bagholder, Richardson Scale Co.

No. 7678—Products catalog, General American Transportation Corp.

No. 7679—Conveyor belts, Cambridge Wire Cloth Co.

No. 7680—Bovine mastitis treatment, Squibb Division of Olin Mathieson.

No. 7681—Bin level controls, Stephens-Adamson Manufacturing Co.

No. 7682—General catalog, Dow Chemical Co.

No. 7683 — Combination spreader, Gaddis Bros. Manufacturing Co.

No. 7684—Multiple vaccine, American Scientific Laboratories, Inc.

No. 7685—Lamb hormone implants, Chas. Pfizer & Co., Inc.

No. 7686—Health product promotion, Merck & Co., Inc.

No. 7687—Weighing system, Weber Air-Weigh Co.

No. 7688—Bulk material trailer, Productive Acres Mfg. Co.

No. 7689—Animal health product, Dr. Salsbury's Laboratories.

No. 7690—Conveyor holdbacks, Stephens-Adamson Mfg. Co.

No. 7691—Formula capsule, Richardson Scale Co.

No. 7692—Cattle food supplement, Van de Keen.

No. 7693—Egg washer, grader, Oakes Manufacturing Co.

No. 7694 — Materials transport, Delta Tank Manufacturing Co., Inc.

No. 7695—Urea folder, Olin Mathieson Chemical Corp.

No. 7696 — Cab-controlled unloading, Henderson Mfg. Co.

No. 7697—Winter sales promotion, American Scientific Laboratories, Inc.

No. 7698 — Product list, Eastman Chemical Products, Inc.

No. 7699—Urea product, E. I. du Pont de Nemours & Co., Inc.

No. 7700—Feed box accessory, Sudenga Industries.

No. 7701—Scale data sheet, Richardson Scale Co.

No. 7702—Folder on dairy feeding, U.S. Industrial Chem. Co.

Two Livestock Events Combined at Exposition

CHICAGO—Two of the foremost livestock events in the U.S. will be combined into one huge exhibition by merger of the International Dairy Show with the 60th annual International Live Stock Exposition.

Each ranks at the top of its field —one as a continental showing of the dairy breeds and the other the world's leading exposition of the meat-making breeds of farm animals.

The merger brings the five breeds of dairy cattle—ayrshires, brown swiss, guernseys, holsteins and jerseys—into competitions of the International Live Stock Exposition for the first time in its 60-year history. The combined exposition will be held here in the International Amphitheatre Nov. 27 to Dec. 5.

BUSINESS LICENSE

ARVADA, COLO.—Farmer's Feed & Supply has been issued a business license here with H. L. Payte as owner.

Georgia Feed Mills Warned of Crotolaria

ATHENS, GA.—Feed mills are being urged to check their corn to see that no crotolaria seed is included in grain since crotolaria is poisonous to chickens.

The Georgia Extension Service has warned poultrymen not to get any crotolaria seed in their poultry feeds. Where crotolaria is grown as a soil building crop followed by corn and harvested with a mechanical picker and sheller, the corn may become contaminated with the seed, according to the extension specialists.

Both the seed and leaves of crotolaria are poisonous.

POULTRY PLANT MOVED

PELAHATCHIE, MISS. — Bill Garth, farm and hatchery operator, has moved his egg grading and processing plant into a newly-constructed building on Highway 80.

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"In the 7 months we've had our Strong-Scott Hammermill and Triple Action Mixer, our sales have equalled what they were the entire 12 preceding months.

"We grind all small grains," added Dale, "and have no trouble at all in grinding a two ton load in 10 minutes." Mixing, grinding, and conveying is a fast, automatically controlled operation at Peterson, Iowa.

"I sure like those specially hardened, sectionalized screens," said Dale. "Ours still don't show any wear whatsoever." Quick-change screens of various sizes in the Strong-Scott Hammermill offer ideal selection for custom grinding.

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JOE BROOKS

BY AL P. NELSON

New Ideas Can Be Adopted

Pop Henley, crowding 70, and a little portly to boot, and who sometimes walked with an arthritic limp, especially on damp days, came into Joe's office a half hour before closing time that cold fall day.

"Joe," he said, "got a little time to discuss an idea?"

"You bet," Joe smiled, stopping his ad writing. "You know me and ideas. I'm always looking for those that can improve the efficiency of my mill and make some extra profit."

Pop had worked for Joe many years, in fact ever since he retired as a territorial mayonnaise salesman for a big Chicago firm. Joe liked the fellow, who always had some good selling ideas, and Pop knew how to handle customers. He coached the younger men in ways to talk with customers and to serve them. And since Pop was getting old, Joe gave him light jobs, such as taking orders from farmers, arranging stock and answering the phone. He figured Pop was well worth his salary because of his knowhow.

Pop's only weak point was the fact that he had a hot temper when it came to Milt Peters and his constant mention of redheads. Pop could easily control this temper when talking with customers, but he often blew his top when Milt talked overly long about those luscious redheads he liked to date.

Now Pop settled his heavy frame into one of Joe's captain's chairs in the office and lighted a cigarette. "Joe," he said slowly, "when I was selling mayonnaise years ago, we always had to think of two things, among others."

"What were they?"

Watch Competition

Pop took a puff on his cigarette. "Well, the first was to get out and sell like heck and get those orders at the right price. And that still holds today. The second thing was to watch the competition and know what they were doing. And then to try to stay ahead of them."

"Well, that sounds like a good policy," Joe said.

"It is," Pop said quickly. "I ain't got any patience with the kind of guy who says he's so busy doing his own promoting that he doesn't pay any attention to what his competitors are going. It shows he's narrow minded."

"Why?"

Pop chuckled. "Well, a guy that sticks his nose and eyes so close to his own business and doesn't watch competitors, is figuring he knows everything there is to know and nobody else knows more than he knows. But the competition has got ideas, too—and often some darn good ones."

"You don't have to tell me that," Joe said. "I've learned that from experience."

"Good," Pop said. "Your mind is open, I see. The smart salesman, I always figured, pushed his own brain as hard as he could, then watched his competitor operate and picked his brains, too."

Joe chuckled. "I can see you do a lot of thinking, Pop. Now how does all this sales approach fit the Brooks Feed Co.?"

"I'm coming to that," Pop said slowly. "Joe, there's a lot of talk about integration around here, ain't there?"

"Right, there are even a few plans starting to operate in the county."

"But you are not figuring to get into an integration program, Joe?"

Joe was silent for a moment. "Not just at present," he said finally. "But my mind is open for the future."

"That's what I thought, Joe. But we have to figure every farmer is interested in integration, especially its reported benefits. Right?"

"Right. Especially poultrymen and hog farmers."

"Well, Joe," chuckled Pop. "Let's cash in on that trend."

Joe looked puzzled. "How, Pop?"

"Even though we aren't yet ready to integrate, let's use some of the tools of the integrator," Pop suggested. "Let's offer to rate hog farmers and egg producers on a series of two weekly visits per month, make out a report sheet for a farmer, leave a copy with him, and then send him a monthly analysis on how his hog program or egg producing programs rate."

Joe whistled. "Wow, good idea, but it would cost a lot of time."

Pop shrugged. "Any promotion program costs time and money nowadays, Joe. We could advertise that farmers could benefit from such a program."

"Yes?"

"Twice a month, for instance, we would send Windy or Smiley or someone else to visit egg producers that asked for this check-up. They would check on breed of laying hen, rate of lay, feeding methods, housing space per bird, ventilation, feeding space, frequency of egg handling,

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percentage of dirty eggs, cooling, etc. We could rate on the basis of 100%. When the farmer studies his report, he can see how he would rate. Anything less than 100% would show he should improve in those categories if he wished to do as good a job as the best integrated producer. We could make the same surveys for hog farmers."

"Say," said Joe quite enthusiastically. "I would like to do some of that work myself. We have been urging good egg management programs and hog management programs for years, but this approach of yours is a good one. It challenges the independent farmer to have a check made on his layer and hog operations to see how they stack up."

Pop chuckled. "Sure, and we would sell a lot of extra feeders, waterers and poultry remedies in the process. This would be an excuse for us to contact farmers and render them a service in which they are interested."

"That's right," Joe said softly. "And it would enable us to offer a service a lot of competitors are not now offering. Pop, you'll get a little bonus in your next pay envelope for this idea. It's one we can use."

14 Firms Send Men To Ultra-Life Course

LAKE KORONIS, MINN.—Representatives from 14 Minnesota feed manufacturing firms recently attended a five-day course in livestock and poultry nutrition and management conducted by Ultra-Life Laboratories, Inc., at Bugbee Resort, Lake Koronis, Minn.

Highlights of the meeting, conducted annually by Ultra-Life Laboratories, manufacturer of vitamin-trace mineral products, included a report of a new type of formulation said to be producing gains of as high as 4 lb. per day in beef cattle, the announcement of a new heifer program which embodies restricted energy feeding, and the use of silage feeding for hogs during gestation periods.

Ultra-Life personnel conducting the school were: Dr. Gordon Strite, poultry specialist; George Honea, livestock department manager; Carl Hagen, territory manager, and Bill Costello, district service manager.

Indiana Firm to Build Million-Bushel Elevator

MOUNT VERNON, IND.—Morris Grain Corp. will erect a million bushel grain storage elevator on land southwest of Mount Vernon which the company purchased from Central Soya Co., Inc., according to Robert Z. Morris, president of the corporation.

Central Soya purchased the 26.37 acres earlier in the year. Should that company wish to use part of the tract for an elevator, which the company announced it would build, it will be available to them, Mr. Morris stated. His company will not use all of the land.

Morris Grain Corp. plans to begin erection of the local elevator in the spring and expects to have it in operation by late summer.

Oil Meal Production

WASHINGTON — September production of soybean cake and meal was 62,400 tons less than August's output of 697,700 tons, according to the U.S. Department of Commerce. Production of cottonseed cake and meal, however, was three times larger in September than the month before. Comparative figures reported by the federal department were 226,900 tons for September and 70,100 tons for August.

FEED STORE SOLD

ORLAND, CAL. — The Huffman Feed & Supply Store in Orland has been sold by its founder, Harry H. Huffman, to George Wellman.

Indiana Egg Award

INDIANAPOLIS, IND.—Vern F. Steckley, immediate past president of the American Poultry & Hatchery Federation, was presented with the 1959 Golden Egg Award at the 41st annual meeting of the Indiana State Poultry Assn., Inc., recently here. Among the committees and organizations on which Mr. Steckley has served during the last 25 years are: executive committee, baby chick department; past president, Indiana State Poultry Assn., Inc., and state leader for the Poultry and Egg National Board of Indiana.

MANAGER NAMED

PENDLETON, ORE. — Darrell Johnson, pump and irrigation manager at Pendleton, has been named manager of the Athena, Ore., branch of the Pendleton Grain Growers, according to James Hill, Jr., general manager. Mr. Johnson succeeds Robert Frink who has resigned.

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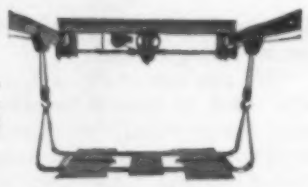
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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Wheat By-Product Definitions

One of the significant changes adopted at the recent meeting of the Association of American Feed Control Officials in Washington involves definitions and terms of certain mill feed by-products. With the help of the Mill Feeds Committee of the Millers National Federation and a special committee of the American Feed Manufacturers Assn., Parks Yeats, investigator for Wheat By-Products, proposed simplifying some of these. Nine previously listed terms were reduced to four.

WHEAT MILL RUN—What has been referred to as "Wheat Mixed Feed" is now to be called "Wheat Mill Run." The wording of the definition is exactly the same as the present wording, definition 223, page 58 of the 1959 annual publication, except for the change in name.

The reason for this change is twofold. The association for several years has been endeavoring to clarify the use of the word "Feed" in official terms. The demand has been to eliminate the word "Feed" in the name of a product unless there is some compelling reason for keeping it there. In the first place, therefore, Mr. Yeats was interested in removing the word "Feed." The second reason for changing this is the fact that many of the millers and purchasers refer to this product and have always referred to this product as "Mill Run." In his (Mr. Yeats') particular area the words "Wheat Mixed Feed" are seldom used and with the possible exception of California the same is true throughout the U.S. He and the committee he worked with felt that the term "Mill Run" would receive more acceptance than "Mixed Feed."

WHEAT MIDDLINGS—The next change that was recommended was the dropping of the word "Standard" from the term "Wheat Standard Middlings." The definition again remains exactly the same as in paragraph 224, page 58 of the 1959 publication. Changes in the other two definitions, mentioned later, are related to this in that now no other reference is made to "Middlings" in any other definition or in any other term.

These two new terms and definitions are as follows:

"Wheat Mill Run consists of coarse wheat bran, fine particles of wheat bran, wheat shorts, wheat germ, wheat flour and the offal from the 'tail of the mill.' This product shall be obtained in the usual process of commercial milling and shall contain not more than 9.5% of crude fiber.

"Wheat Middlings consists of fine particles of wheat bran, wheat shorts, wheat germ, wheat flour and some of the offal from the 'tail of the mill.' This product shall be obtained in the usual process of commercial milling and shall contain not more than 9.5% of crude fiber."

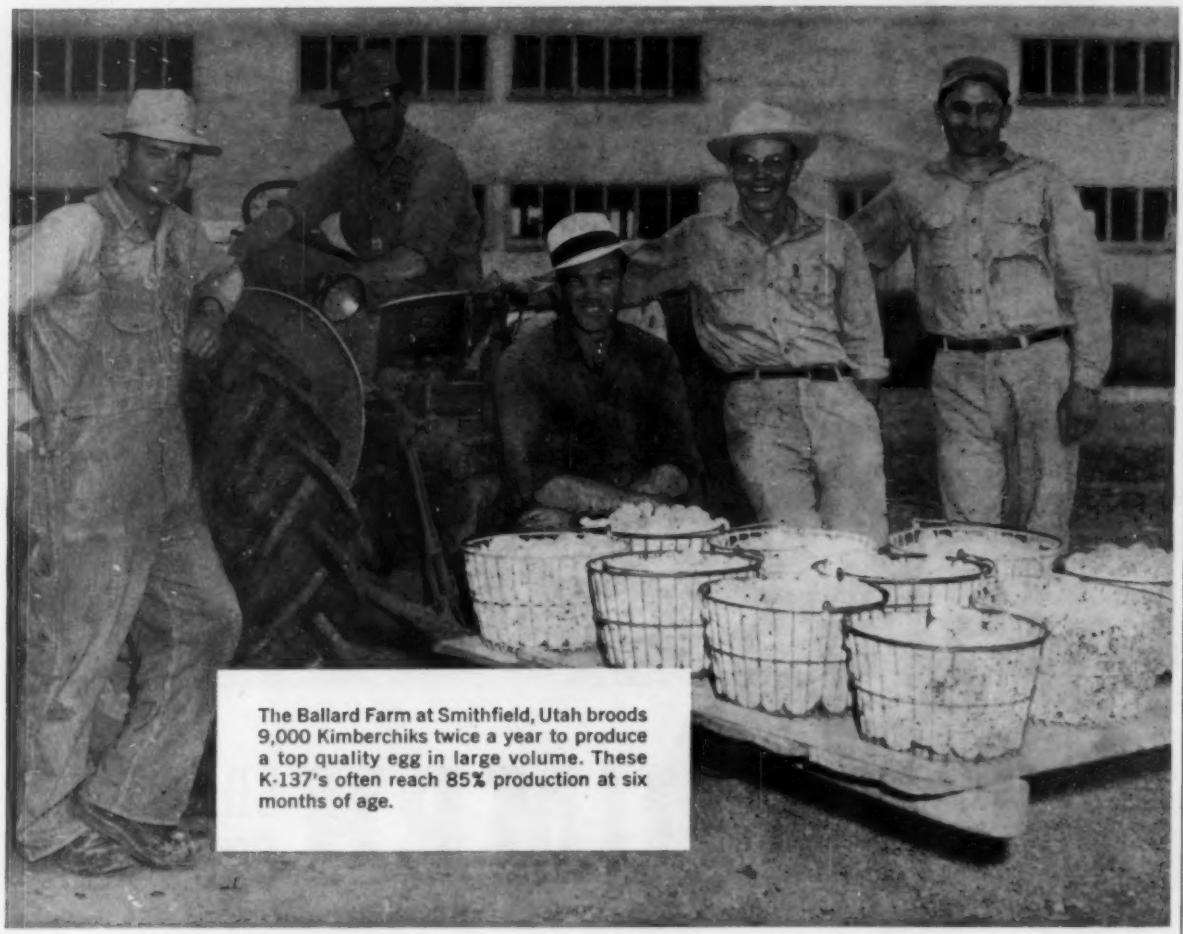
It is pointed out that the only difference in these two products is the particle size of the wheat bran. The wheat bran in "Wheat Mill Run" is in the form as it comes from the roller. In the case of Wheat Middlings the bran particles have been ground and are in a "fine" condition. The fiber is the same for both products.

In the discussion of these two terms, this question was asked: Why do we need two definitions when the only difference is a matter of fineness? This was explained by the industry. In certain types of feeds, coarse flakes of the bran are necessary, in fact desirable. This is especially true in the manufacture of a dairy feed. In the manufacture of a poultry feed the opposite is true. In order that the buyer may quickly recognize the difference in the two products the two terms given above are to be used. The idea of having only one definition for a product "Wheat Mill Run" with two qualifications, one to be known as "Fine" and the other "Coarse" was "kicked around" in committee. Apparently this was "kicked out" as it was decided that this would not be as satisfactory as the present proposal.

WHEAT SHORTS—A new term, "Wheat Shorts," is proposed to replace what has formerly been referred to as Wheat Brown Shorts, Wheat Gray Shorts, Wheat Gray Middlings or Wheat Flour Middlings. These formerly appeared as two definitions, definition 225 and definition 226 on page 59 in the 1959 publication. The new definition reads:

"Wheat Shorts consists of fine particles of wheat bran, wheat germ, wheat flour and the offal from the 'tail of the mill.' This product shall be obtained in the usual process of commercial milling and shall contain not more than 7% of crude fiber."

This definition carries the same wording as formerly appeared for "Wheat Gray Shorts, Wheat Gray Middlings or Wheat Flour Middlings" with one modification. The maximum fiber has been increased to 7%. This was necessary because the other definition that was eliminated for Wheat Brown Shorts carried a maximum of



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7.5% crude fiber. It is believed that millers will be able to hold down the fiber guarantee to 7%. It is necessary to raise it in the case of what has been described as Wheat Gray Shorts, Wheat Gray Middlings or Wheat Flour Middlings since improved milling methods now make it possible to take out more of the flour particles, especially in wheat from areas of the southwest that are particularly arid.

WHEAT RED DOG — The other change is in the nature of an editorial one. All that has been done is to drop the terms "Wheat White Shorts, or Wheat White Middlings" as synonyms for "Wheat Red Dog" in what has been listed as definition 227 on page 59 of the annual publication. From now on this will be simply "Wheat Red Dog." This definition now reads:

"Wheat Red Dog consists of the offal from the 'tail of the mill' together with some fine particles of wheat bran, wheat germ and wheat flour. This product shall be obtained in the usual process of commercial milling and shall contain not more than 4% of crude fiber."

Resolution re-worded — One further change in relation to Wheat By-Products is the resolution with respect to the disposal of Ground Wheat Screenings. This was changed so that it now reads:

"Resolution: Resolved when 'Ground Wheat Screenings' are added to any wheat product, such screenings added shall be limited to 'Ground Wheat Screenings' not exceeding the run of the mill; and screenings from outside sources shall not be added. The declaration of 'Ground Wheat Screenings' must be made in the name and in the same size type as the product name itself. For example: 'Wheat Bran with Ground Wheat Screenings,' 'Wheat Shorts with Ground Wheat Screenings'."

The change here was to drop use of the expressions "Not Exceeding Mill Run" or "Not Exceeding ...%." It was pointed out in the discussion that most of the wheat going to flour millers for flour purposes seldom contains more than 4% screenings and in many cases even less. In the past a rule of thumb has been applied that the "Not Exceeding Mill Run or ...%" expressions should mean that no more than 8% of such screenings would be added back to the product. This in some circles is believed to have encouraged the addition of screenings from sources outside; the trade does not want this. The new wording sets forth the principle that screenings from sources outside a mill are not to be added back to these products.

Millers and feed manufacturers should contact their state feed officials for details as to how this change-over in a given state is to be accomplished. It is hoped that all will be able to move in the direction of adopting these as rapidly after Jan. 1, 1960, as possible.

INCORPORATED

MITCHELL, S.D. — Simpson Hatchery, Inc., has been incorporated, listing $500,000 capitalization and the following incorporators: James W., Leone L., and William L. Simpson, all of Mitchell.

Ful-O-Pep Conference

CHICAGO—Twenty four new Ful-O-Pep sales representatives from six feed sales divisions of The Quaker Oats Co., Chicago, recently completed a "product knowledge" conference held at Highland Park, Ill. The conference, under the direction of N. W. Smith, manager of feed sales training, was the first section of an extensive one-year training program for new Ful-O-Pep salesmen. Other conferences will deal with finances, dealer development and sales techniques.

FEED DEALER KILLED

BENTON, ARK. — Don Shepherd, 25, owner of the Shepherd Feed Store at Benton, was killed in a gun accident recently while returning from a squirrel hunting trip. He apparently had reached into his car to get his rifle when the gun discharged accidentally. Survivors include his wife and parents.

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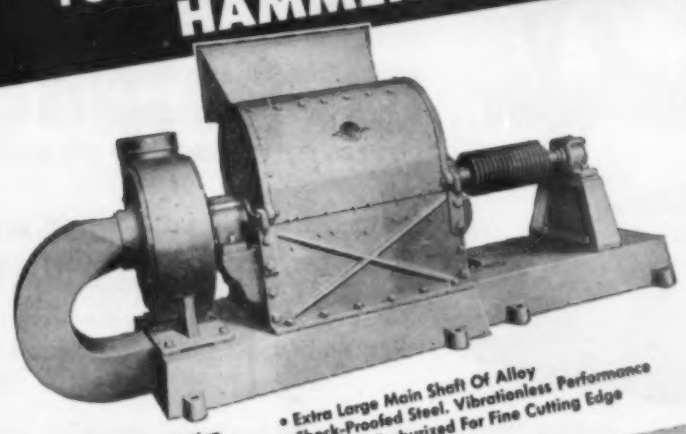

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PROBLEMS

(Continued from page 34)

quirements. However, two factors should be kept in mind in this connection. First, it is generally accepted that there should be somewhere near a 2:1 ratio between calcium and phosphorus. That is, if the level of calcium is increased in the high fat diet, then this relationship of two parts calcium to one of phosphorus should be maintained. Secondly, phosphorus functions in the metabolism of carbohydrates and fats. Consequently, if you increase the level of calcium in the high fat diet and keep the relationship between calcium and phosphorus at somewhere near two parts of calcium to one of phosphorus, it is assumed that the ration should perform at somewhere near its maximum efficiency, at least as far as the relationship between calcium and phosphorus is concerned.

Phosphorus is concerned with bone formation. It also functions in the metabolism of carbohydrates and fats. Dr. G. F. Heuser (11) states, "In the ration for growing chicks a ratio of calcium to phosphorus of 1.5 to 1 is desirable."

A word of caution relative to the level of calcium and phosphorus might be in order. D. C. Henderson and A. M. Smith reported in the June 14, 1958, issue of "Feedstuffs" on the rate of growth obtained with chicks on an extremely high mineral diet. The chicks showed poor feathering, marked depigmentation of the feathers and perosis. Furthermore, the chicks on the high mineral diet averaged only 873 gm. at eight weeks of age, while chicks on the control ration averaged more than 1300 gm. at the same age.

(c) **Protein**—Protein is made up of a number of amino acids or "building blocks." The quality, or biological value, of a protein depends on the amino acids it contains—which ones and how much of each.

Methionine is one of the essential amino acids. Soybean oil meal is relatively low in this sulphur bearing amino acid. Rosenberg and Baldini (12) reported that "Methonine requirement, expressed as percent of the diet, increases as protein level increases.

"On higher energy diets the methionine requirements increased approximately proportional to the increase in protein and energy." That is, as protein and energy levels are increased, the need for methionine is likewise increased.

SUMMARY

1. The productive energy of today's rations has been materially increased through the addition of yellow corn, and animal and vegetable fats at the expense of oats, alfalfa leaf meal, bran and other low calorie ingredients. As the efficiency of the diet is increased, the importance of a proper balance is enhanced.

2. Nutritionists have reported a higher incidence of cannibalism as the level of fiber has been decreased and the energy of the ration increased.

3. The high carbohydrate diets seem to increase vitamin B_{12} or thiamine requirements.

4. As egg production is increased, the need for calcium is likewise increased.

5. In general, two parts of calcium to one part of phosphorus is required in the diet. It is generally accepted that the calcium intake of chicks should not exceed 1% of the ration, and that of hens 3% of the ration; however, the ratio of two parts of calcium to one of phosphorus should be maintained.

6. The efficiency of utilization of calcium and phosphorus is increased through the proper amount of vitamin D in the diet.

7. Workers have reported an increased need for calcium when fat is added to the diet.

8. The methionine requirement seems to be increased as the protein and energy level of the diet is increased.

9. In answer to the question, "Are our present high energy poultry rations responsible for our poultry troubles?" I think we can answer this by "yes" and "no." We can get into trouble if the ration is not adequate, and if there is an improper balance. On the other hand, if the bird's requirements are met, then the high energy diets should do the job they are supposed to do to the advantage of the poultryman and the feed manufacturer.

v v

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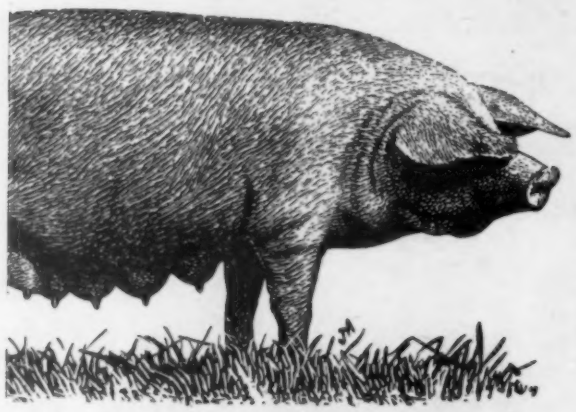
California Company Adds 14 Storage Bins

PETALUMA, CAL. — Fourteen storage bins for grain products have been added to the plant of R. O. Shelling Co., Petaluma, to increase overall holding capacity by an estimated 760 tons.

Twelve bins are 50-ton capacity and two 80 tons. They will be used for concentrates and grain. Grain delivery facilities also are being improved to increase plant production to 100 tons per day.

Other companies have improved or enlarged operations in the Petaluma area. Vonsen Milling Co. has taken a warehouse across the street from the present plant. California Century pellet mills have been installed at H. Pini & Co., and at the Dairymens Feed & Supply Co. The machinery capacity at Dairymens is now an estimated nine tons per hour.

Dairymens Milling Co. in nearby Novato also is making improvements in its storage facilities, according to Tony Caetaro, general manager.



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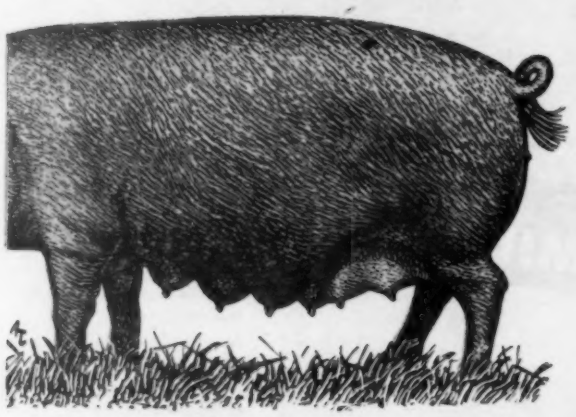

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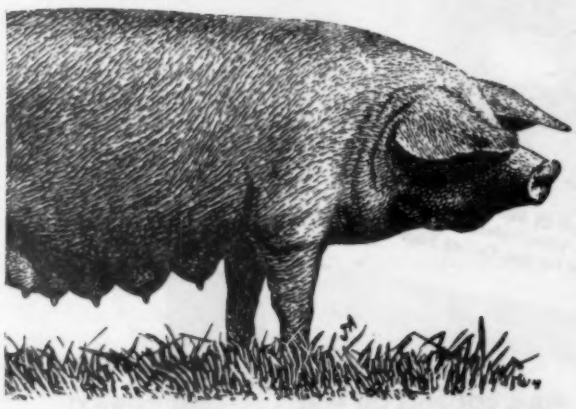

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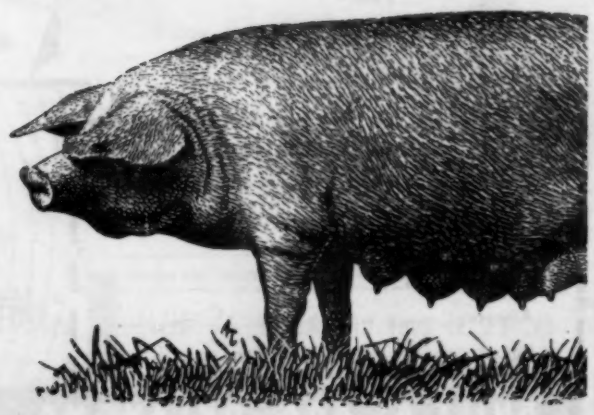

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POLLED DORSET — Prof. Lemuel Goode, University of North Carolina department of animal industry, is shown with a polled Dorset ewe. Prof. Goode conducted the original experiments which resulted in the development of the new polled breed.

Polled Dorset Sheep Gain in Popularity

RALEIGH, N.C.—A strain of hornless Dorset sheep, developed at the North Carolina Agricultural Experiment Station, is gaining widespread interest among sheep breeders. There are now 42 purebred herds in production in 19 states.

George Ellis, animal industry department at the University of North Carolina, pointed out that the Dorset breed, although one of the oldest and most useful breeds of sheep from the standpoint of breeding efficiency, has not gained in popularity because of the presence of horns in both sexes. He noted that common objections to horned sheep include difficulty in shearing, plus the fact that horns frequently grow into the head. The horned sheep also take up more space at feed bunkers.

According to Prof. Lemuel Goode, department of animal husbandry, the polled strain of Dorsets has the same general characteristics as the horned Dorsets. Development work on the polled Dorsets began in 1951.

Howard F. Watkins Retires from Swift

CHICAGO — Howard F. Watkins has retired from his position as assistant manager of the general feed department of Swift & Co., Chicago. He has been with the firm 43 years.

Howard Watkins

Mr. Watkins started his career with Swift in Kansas City in 1916, and subsequently held positions in New York and Harrison, N. J., and as an animal feed salesman in the Iowa territory, with headquarters at Cedar Rapids. He has been in Chicago since 1939.

Team Goes to India

MANHATTAN, KANSAS—Dr. Arthur D. Weber is one of four Americans named to an Indo-American team which will review agricultural research, education and extension in India. The International Cooperation Administration is making arrangements for the team.

Dr. Weber, dean of agriculture at Kansas State University, recently was the animal husbandry specialist on a Ford Foundation team of 12 American agricultural experts sent to India to advise the government on ways to increase food production.

Oyster Shell Plant

BAINBRIDGE, GA.—A plant to process oyster shells for poultry use will be established near the state docks at Bainbridge in the near future, Lloyd Rich, Jr., chairman of the "Committee of 100," announced recently.

The oyster shells for processing will be brought in from the Gulf of Mexico area by barge up the Flint River to Bainbridge. They will be processed for shipment by rail to Gainesville and other centers of the poultry and egg industry.

Mr. Rich said this will be the first new industry to locate here since the organization was started several months ago. The name of the new concern has not yet been announced.

Dividend Declared

DENVER—Robert M. Pease, president of the Colorado Milling & Elevator Co., has announced a quarterly dividend of 35¢ a share on the company's outstanding common stock. The dividend, declared at a meeting Oct. 31, is payable Dec. 1 to stockholders of record at the close of business Nov. 15, 1959.

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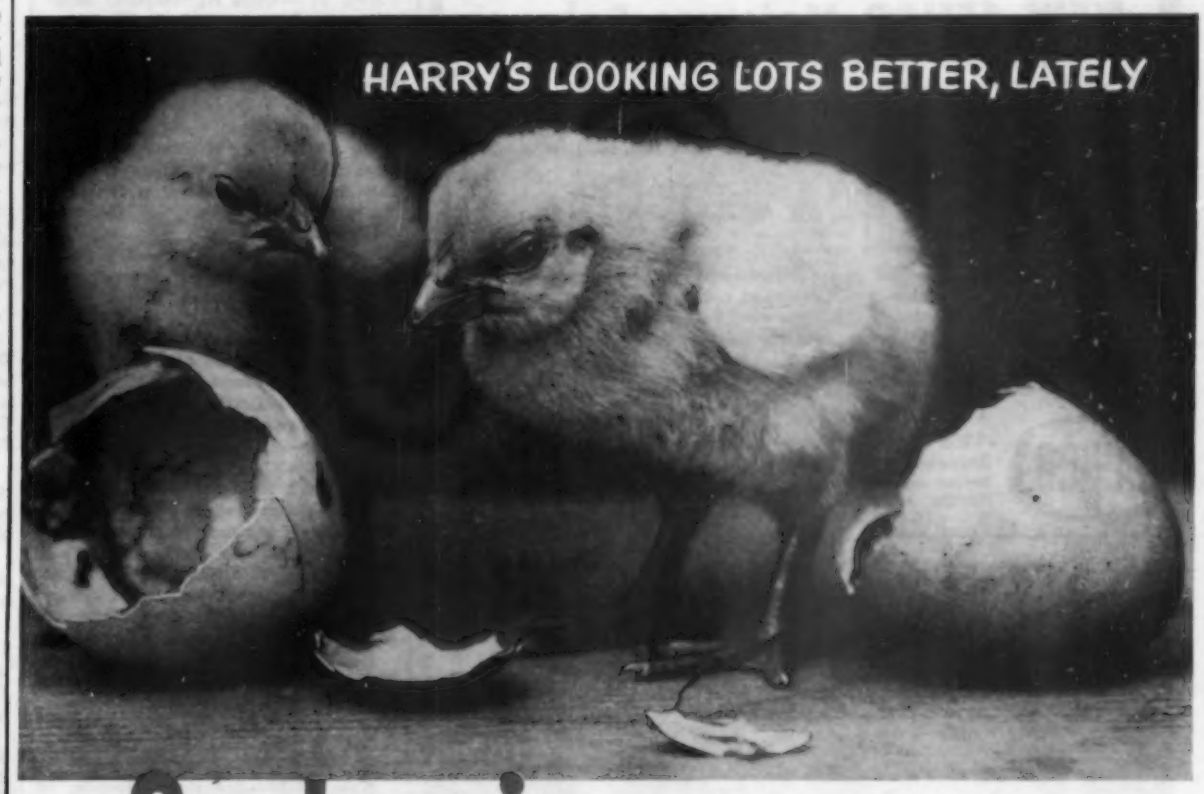

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Convention Calendar

Nov. 16—Tennessee Feed Manufacturers Assn., Claridge Hotel, Memphis, Tenn.; sec., Charles H. Warfield, American Trust Bldg., Nashville, Tenn.

Nov. 16-17—Washington Animal Industry Conference; Yakima Junior College, Yakima, Wash.; John G. Wilson, Washington State Feed Assn., Inc., 814 Second Avenue Bldg., Seattle 4.

Nov. 17 — Ohio Agricultural Marketing Conference; Ohio Union Bldg., Ohio State University, Columbus; Dr. John W. Sharp, Room 334, Agricultural Administration Bldg., 2120 Fyffe Road, Ohio State University, Columbus 10, Ohio.

No. 17-18—Egg Industry Conference, North Carolina State College, Raleigh; College Extension Division, Box 5125, State College Station, Raleigh, N.C.

Nov. 18—School for Poultry Servicemen; University of New Jersey, Agricultural Experiment Station, New Brunswick; chm., R. L. Squibb, Department of Poultry Science.

Nov. 19-20—National Swine Industry Conference; Iowa State University, Ames; chm., Keith Myers, National Swine Growers Council, Grundy Center, Iowa.

Nov. 21—Missouri Sheep Day, University of Missouri, College of Agriculture, Columbia; C. V. Ross, Department of Animal Husbandry.

Nov. 22-24—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 23-24—Alabama Nutrition and Management Conference; Duncan Hall, Alabama Polytechnic Institute, Auburn; chm., Merlin Bryant, Brundidge Milling Co., Inc., Brundidge, Ala.

Nov. 27-28—American Society of Animal Production; Sherman Hotel, Chicago, Ill.; sec., Dr. H. H. Stonaker, Colorado State University, Ft. Collins, Colo.

Nov. 30-Dec. 1—Midwest Veterinary Nutrition Conference; President Hotel, Kansas City; sec., Lloyd Larson, Midwest Feed Manufacturers Assn., 20 W. 9th Street Bldg., Kansas City 5, Mo.

Dec. 2—Ontario Retail Feed Dealers Association; King Edward Sheraton Hotel, Toronto; sec., Murray McPhail, 69 Yonge Street, Toronto.

Dec. 3-4—North Carolina Animal Nutrition Conference; North Carolina State College, School of Agriculture, Raleigh; chm., E. R. Barrick, Head, Animal Husbandry Section.

Dec. 4-5 — Arkansas Turkey Convention and Show; Berryville, Arkansas; sec., Charles D. Hawks, P. O. Box 1446, Little Rock.

Dec. 7—Dairy Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville; Dr. O. T. Stallcup, station dairyman.

Dec. 7-9—Minnesota Poultry Assn., Radisson Hotel, Minneapolis; sec., L. L. Baumgartner, Litchfield, Minn.

Dec. 7-11—Washington State University Stockmen's Short Course, Pullman; chm., Dr. M. E. Ensminger, department of animal science.

Dec. 8-9 — Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Jan. 4-8 — Retail Feed Dealers Training School; University of Minnesota, St. Paul; Dr. J. O. Christianson, Director of Agricultural Short Courses, Institute of Agriculture, St. Paul 1.

Jan. 5-7—National Turkey Federation; Hotel Leamington, Minneapolis; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 16—Florida State Poultry Producers Assn.; Angebilt Hotel, Orlando, Fla.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 900 Board of Trade Building, Indianapolis, 4, Ind.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec. Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 2-3 — Agricultural Industries Forum; University of Illinois, College of Agriculture, Urbana; Department of Agricultural Economics, 305 Mumford Hall.

Feb. 2-4 — American Dehydrators Assn.; Broadmoor Hotel, Colorado Springs; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 4-5—Oregon Animal Industry

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

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1960

June 14-17—NEPPCO Egg Quality School, Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevels Pearson, P.O. Box 472, East Lansing.

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Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 4-5—New Hampshire Poultry Health Conference; University of New Hampshire, Durham; Richard Warren, Poultry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg. Kansas City 5, Mo.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn., mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12—Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington, Ohio.

Feb. 23-24—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Mar. 17-18—Maryland Nutrition Conference; Shoreham Hotel, Washington, D. C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 31-April 2—Pacific Dairy & Poultry Assn. Exposition and Convention; Stardust Hotel, Las Vegas, Nev.; association office, 1304 E. 7th St., Los Angeles 21, Cal.

April 1-2—Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth 2, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 11-13—Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Association; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

June 13-15—American Association of Feed Microscopists; San Antonio, Texas; E. E. Brown, Office of State Chemist, Texas Agricultural Experiment Station, College Station.

June 14-15—Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas-Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

July 23-26—Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

Oct. 5-7—Texas Nutrition Conference, Texas A&M, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

CALENDAR FOR 1959-60

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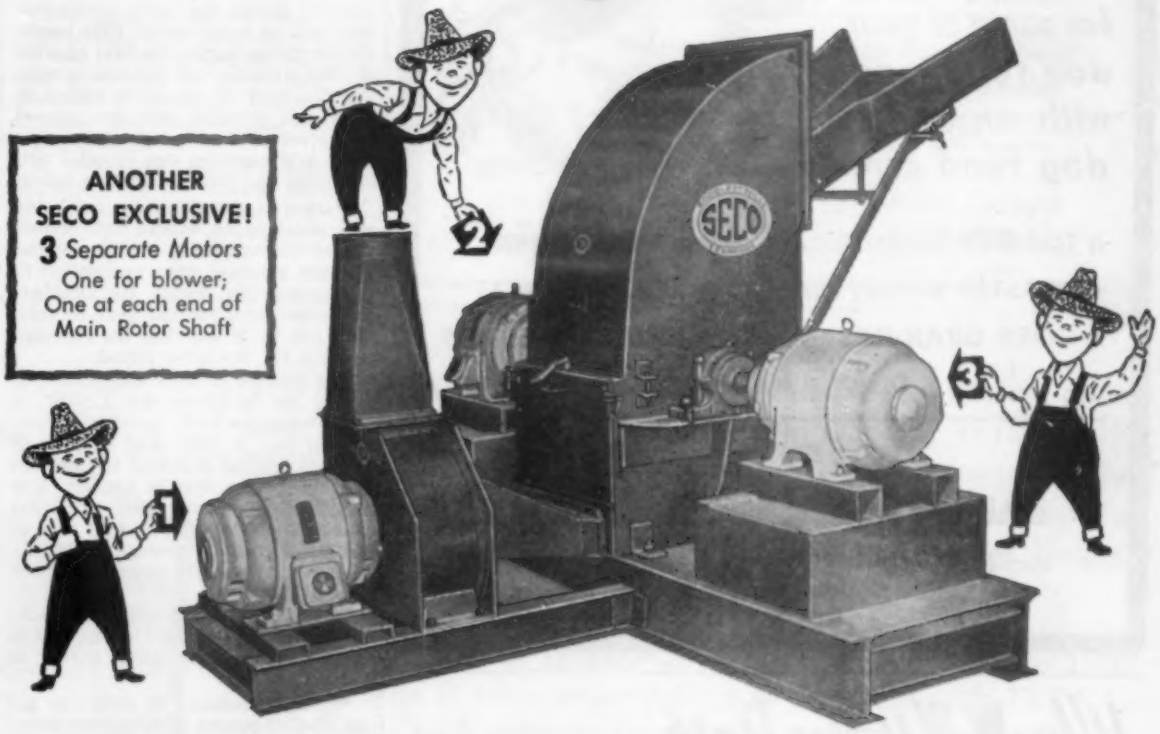

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Poultry Topics Discussed at Arkansas; Encouraging Tone in Outlook Forecast

FAYETTEVILLE, ARK.—An encouraging picture was painted of the poultry and egg outlook scene at the recent third annual Poultry Study Day on the campus of the University of Arkansas.

Prof. W. J. Windham predicted that broiler prices during the first quarter of next year may increase to near the 17¢ level of early 1959; egg prices in the first quarter are likely to average 1@2¢ doz. higher than the 31¢ average for the first half of 1959, and turkey price averages during the last quarter of this year can be expected to reach or slightly exceed the 23.4¢ average for the last quarter of 1958.

Prof. Windham was one of a group of university staff members participating in the Poultry Study Day program. Other topics taken up centered on modern trends in broiler nutrition; practical, useful and profitable use of antibiotics in poultry production; over-production problems; poultry and egg marketing; broiler auctions; breeding progress; house temperature control, and poultry procurement opportunities in Arkansas.

In addition to speakers who appeared on the program individually, seven poultry industry representatives formed a panel to discuss chain store retailing, breeding barriers to production, points of view of feed manufacturers and processors, federal inspection and other related topics.

Poultry and Egg Outlook

Prof. Windham said continuing increases in U.S. population, in number of people employed and in disposable consumer income indicate a steadily expanding market for agricultural products. Though poultry products will share in this growing market, he said, demand for individual poultry products will vary seasonally and will be affected by supplies of competing products. "It will be necessary, therefore, to hold production in line with the demand situation, if producers of these products are to receive favorable returns," Prof. Windham commented.

POULTRY STUDY DAY SPEAKERS—Three University of Arkansas faculty members who presented talks as a part of the recent third annual Poultry Study Day program at the Arkansas Agricultural Experiment Station, Fayetteville, are (from left): T. R. C. Rokeby, associate agricultural engineer; Dr. E. L. Stephenson, poultry nutritionist, and Dr. N. R. Gyles, associate poultryman.

Broiler prices during the last quarter of 1959 probably will not average more than the 15.6¢ average for the last quarter of 1958. Prof. Windham said chick placements will remain below year-ago levels through the remainder of this year; and market supplies during the early months of 1960 will be below early 1959 levels. Broiler prices during the first quarter of 1960 probably will increase to near the 17¢ level of the same period in 1959, but probably will not exceed that level.

He said hatching egg supplies will be ample for 1960 production needs.

Market egg production probably will continue to exceed 1958 levels during the remainder of 1959, and the average price of eggs probably will not exceed 36¢ during the October-December period of this year, he said. This will be 2¢ less than the year-ago average for the same period.

The number of hens and pullets of laying age on farms Jan. 1, 1960, is expected to be 2-3% below the number on Jan. 1, 1959. And supplies of eggs during the first half of 1960 will be slightly less than in the first half of 1959. Consequently, Prof. Windham noted, egg prices in the first half of 1960 are likely to average 1@2¢ doz. higher than the 31¢ average for the first half of 1959.

The U.S. hatch of egg-type chicks in the first half of 1960 is expected to be 4-8% above the same period of 1959.

Turkeys produced in 1959 will set an all-time record of 82 million birds, according to present indications. The number marketed during the last three months of this year will be about the same as in the last quarter of 1958, but tonnages will be less, due to a higher percentage of light breed birds. Current cold storage holdings are about 18% below year ago levels.

Turkey prices during the last quarter of this year are expected to reach or slightly exceed the 23.4¢ average for the last quarter of 1958. The number of turkeys raised in 1960 probably will exceed the 1959 record number. If the increase actually occurs, 1960 prices probably will average lower than in 1959.

Prof. Windham predicted that ample supplies of feed, at slightly lower prices, will be available for production of broilers, eggs and turkeys in 1960.

Use of Antibiotics

Dr. E. H. Peterson, veterinarian and professor, University of Arkansas department of animal and veterinary science, listed seven antibiotics which he said have found "practical, useful application" in poultry feeding. His list: Aureomycin, bacitracin, erythromycin, oleandomycin, penicillin, streptomycin and Terramycin.

The conception that antibiotics are more effective when given in water than in feed is not true, Dr. Peterson said. When the same amount of drug is ingested, he said, the effect of medication is the same regardless of whether administration is in the feed or the water.

"Feed medication, when possible, is preferable because water-soluble antibiotics cost from two to four times as much as the same amount of drug given in the feed," Dr. Peterson said. "There are only a few instances where antibotics must be injected. These include penicillin for erysipelas, erythromycin or Terramycin for infectious sinusitis of turkeys and streptomycin for infectious coryza."

Use of antibiotics in poultry feeding, he said, may be divided into three major classifications: Growth promotion, intestinal medication and medication through the blood stream.

Dr. Peterson said all the antibiotics he listed, except streptomycin, are useful for growth promotion.

Specific applications mentioned by Dr. Peterson for control of intestinal infections and disorders include:

1. For the control of infectious diseases which are confined entirely to the intestinal tract. These include blue-comb disease, quail disease, hexamitiasis and vibriosis.

2. For the starting of chicks and poults.

3. As a "stress" aid to control diarrhea and maintain appetite during adverse conditions or periods such as air sac disease, vaccination, inclement weather, moving, de-beaking and so on.

4. For the maintenance of egg production, particularly during hot weather. The action of the antibiotics is to keep the intestinal tract healthy.

For the above purposes, Dr. Peterson said, all the antibiotics listed, with the exception of oleandomycin, are useful, and all are similar in activity.

Intestinal medication drugs with similar activity include: Aurofac-10 (Aureomycin), Baciferm (bacitracin+penicillin), Gallimycin (erythromycin), Pro-strep (Streptomycin+penicillin) and Tm-10 (Terramycin). The proper dose for these drugs is from 50 to 100 gm. per ton of feed, or equivalent intakes in the water.

Major uses of antibiotics for medication through the blood stream include: (1) Treatment of chronic respiratory (air sac) disease, (2) control of infectious synovitis and (3) control of ornithosis (turkeys).

"All of the antibiotics are poorly absorbed; that is, most of the drug that is taken into the digestive tract passes out in the droppings, and only a small part gets into the blood stream," Dr. Peterson said. "Aureomycin, however, is absorbed better than any of the others and is, therefore, the best drug to use.

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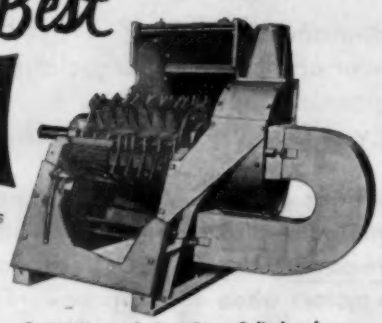

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usefulness of Aureomycin can be increased through the use of 'potentiators,' or mechanisms that make the antibiotics 'go farther.' These include the inclusion of terephthalic acid in the feed, and/or deletion of high calcium-containing feed ingredients. Terephthalic acid is not yet available for general use, but application can be made of calcium salt adjustments."

Dr. Peterson closed his talk by outlining a recommended program for the control of air sac disease using this application.

Broiler Nutrition

Dr. E. L. Stephenson, nutritionist, pointed out advances that have been made in broiler nutrition during the past 30 years.

He summarized improvements in nutrition and advances in production efficiency under the headings of: Increase in production energy content, better amino acid balance and unidentified factors.

Dr. Stephenson commented that many of the previously unidentified dietary factors have since been identified, synthesized and made available in "purer as well as cheaper forms." Many of these factors, he said, turned out to be vitamins, but a few proved to be mineral in nature.

Broiler Auctions

In discussing the impact of auction markets in broiler pricing, Dr. Hilliard Jackson, agricultural economist, said, "The auction cannot be expected to solve the problem of low prices for broilers, which is due to the pressure of a rapidly increasing supply against demand. Auctions are only mechanisms for pricing and exchanging broilers. They do not make prices. Supply and demand still determine price."

Other university staff members appearing as speakers on the Poultry Study Day program included: Dr. Warren Gifford, head, department of animal industry and veterinary science; Dr. N. R. Gyles, Prof. R. M. Smith and L. T. Lankford, all of the department of animal industry and veterinary science, and Prof. T. R. C. Rokeby, department of agricultural engineering.

Panel Discussions

Prof. R. M. Smith, poultryman, was moderator of the panel composed of industry representatives. Participants in the panel discussion were: Charles White, Kroger Co., North Little Rock; J. E. Hinshaw, Arbor Acres Farm, Springdale; A. O. White, White-Guise Hatcheries, Fayetteville; Richard Kendrick, Tyson's Feed & Hatchery, Springdale; J. O. Kumpe, Arkansas Farm Bureau Poultry Cooperative, Bentonville; Dr. John Schweda, U.S. Department of Agriculture poultry inspection branch, Dallas, Texas, and Wade Barron, Livestock Sanitary Board, Little Rock.

Mr. White said he was most concerned about over-production. "Over-production has been brought about by the steady, tremendous growth of the industry. It has caused narrow profits, which in turn have forced integration in order to make a profit," he contended.

Integration cannot be the solution, he warned, as over-production is sure to come within integration.

He remarked that the industry has practically reached a peak of efficiency. "Under the present government grain support program, the poultry industry is no longer competitive. For instance, grain may remain at a government-supported price while hatching eggs sell for 25¢ doz., baby chicks sell as low as 2¢ each and broilers sell for 12¢ lb.

"The grain support program imposes problems on the poultry industry that the best economist and manager can't cope with because our standard of economy (supply and demand) has been eliminated," Mr. White charged.

In commenting on the Arkansas Egg Marketing Act of 1959, Mr. Barron discussed the intent, value and ultimate good to be gained from the measure.

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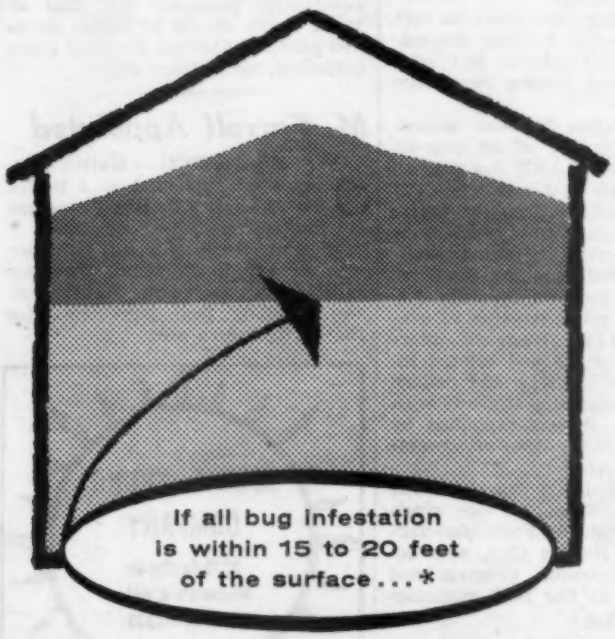

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BEEF CONFERENCE—Among those taking part in the National Beef Industry Conference at Purdue University were these persons. Left to right are Dr. E. L. Butz, dean of agriculture at Purdue; Hazel Stiebeling, U.S. Department of Agriculture; A. O. Rhoad, Kingsville, Texas, chairman of the conference planning committee; Dr. B. S. Schweigert, American Meat Institute, and Dr. R. M. Bethke, Ralston Purina Co., who was general chairman of the conference.

bilize many factors in the areas of production, marketing, quality control, and consumer buying," Mr. Barron said.

Mr. Hinshaw talked about the pressing problems of the meat-type female breeder. He discussed the continuing push to resolve genetic barriers on rate of growth, feed conversion, egg production and hatchability, laying house depletion, dressed quality and vitality or disease resistance.

Texas Program for Industry-College Cooperation Outlined

COLLEGE STATION, TEXAS—A special program aimed at better liaison and cooperation between the college and agriculture-related industry is currently being carried out at Texas A&M College.

For one thing, the program will involve cooperation between the college and the feed industry in orienting, training and placing ag college graduates.

The cooperation between college and industry is part of an over-all program at Texas A&M designed to prepare students better for positions which are resulting from the major transition in agriculture which finds related industries requiring well-trained and well-qualified students.

As part of the program, the college this year set up a series of evening meetings for freshmen interested in agriculture and related industries. Both industry and college speakers will acquaint students with various fields, it was explained by Dr. G. M. Watkins, dean of agriculture at Texas A&M.

The first industry speaker was Lloyd Larson, executive vice president of the Midwest Feed Manufacturers Assn., Kansas City, who described developments, progress and opportunities in the feed manufacturing industry.

To Outline Specifications

The students, many uncommitted now as to the phase of agriculture which they would like to follow, will be told the specifications for various vocations as well as the opportunities.

Dr. Watkins pointed out that the vocational guidance program is aimed at showing not just the benefits an industry may offer graduates but also the requirements which graduates should meet.

In this connection, he noted that the dean's office is taking over placement functions. And one aim will be to show businesses the quality as well as general educational background of individual students. The college will spell out the qualifications and capabilities of students. This information on "quality" will be presented to interested industries.

Mr. Larson said that the Midwest association will take lists of students and information on their abilities and qualifications and disseminate it to association members. In this way, the college and an industry group will cooperate in placement of students in positions for which they are best fitted. Also, the better students thus will have greater opportunities.

Dr. Watkins pointed out, too, that part of the college program is special agricultural science curriculums which will provide a higher than normal level of training. Those who take the full-fledged science curriculums are expected to command higher salaries because of their special training.

Along with these developments in the colleges, Mr. Larson noted, industry also will have to help in getting well qualified high school students interested in ag college training.

The over-all result of such efforts, along with programs like that at Texas A&M, should be better qualified graduates for the feed and other industries, he pointed out.

M. Farrell Appointed

SAN FRANCISCO — Martin Farrell has been appointed as a trader for the Pillsbury Co., San Francisco. He comes from New York.

Mr. Farrell succeeds Jim Falconer, who is now in Portland, Ore., for Pillsbury in charge of the new office handling feed ingredients for the northwestern area.

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Stored for over six months in a hot, humid climate at the bottom of an 18-bag stack, then opened, "Two-Sixty-Two" still retained its pre-test, free-flowing condition, with absolutely no caking. This is another example of the continuing research at Du Pont constantly at work to improve products for the feed industry.

An important, new benefit from Du Pont for feed manufacturers . . .

Take the first and finest feed-grade urea on the market and make it even better. That is exactly what Du Pont has done with its new TWO-SIXTY-TWO® feed compound.

This new, improved formulation of "Two-Sixty-Two" is in a free-flowing condition that will defy even the most rigorous climatic conditions. We at Du Pont know the new, improved "Two-Sixty-Two" will handle the way we say because we know your problems and have manufactured our newest feed-grade urea to meet even the toughest of them. We proved this to our complete satisfaction in the toughest tests we could devise. "Two-Sixty-Two" has been stored for over six months in a hot, humid climate at the bottom of an 18-bag stack and still remained completely free-flowing. The "Two-Sixty-Two" retained its pre-test condition with absolutely no caking.

This wasn't enough. To make sure the new, improved "Two-Sixty-Two" would work well for you, we tried it out in many, many plants under actual operating conditions. The reports of these in-plant trials were excellent, right down the line.

We are so sure that the new, improved "Two-Sixty-Two" will work well for you that we will ship it in bags or bulk—that's right, bulk. If your plant is set up to receive bulk shipments of feed-grade urea, we will ship it that way, and you don't have to worry about "Two-Sixty-Two" setting up in the bin.

There are many advantages other than the free-flowing quality of new, improved "Two-Sixty-Two" that will benefit you in formulating feeds. The crystalline form of the particles of "Two-Sixty-Two" helps to assure you of feeds that will not segregate. "Two-Sixty-Two" works well in all types of mixing equipment, and the nitrogen content (protein) is uniform. Also, it's stable, won't break down or change in storage, and its use permits greater flexibility in formulating.

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The best way to prove to yourself that "Two-Sixty-Two" is the first and finest feed-grade urea on the market is to order some. See your agent for "Two-Sixty-Two" or call Du Pont.

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Farm Supply Sales Up

SAN FRANCISCO — Farm and garden supply stores in California sold an estimated $35,576,000 worth of feedstuffs and other farm products during the second quarter of this year, an increase of 7.7% above the 1958 second quarter estimate of $33,018,000.

The figure represents a fairly steady rate of gain over the past several years by this class of store, and is the highest recorded sales figure for a single quarter.

Machinery Installations

CHICAGO—Prater Pulverizer Co., Chicago, has announced 47 recent installations of its Blue Streak equipment in 13 states, as follows: Wisconsin, 11; Illinois, 9; Nebraska, 1; Missouri, 2; Michigan, 2; Ohio, 5; Iowa, 4; Indiana, 5; Washington, 2; Minnesota, 2; North Carolina, 2; Oregon, 1, and Kentucky, 1.

The prospective employer was interviewing an applicant for a stenographic job.

"—and you thoroughly understand the importance of good punctuation?" he asked.

"Oh yes," said the young lady, "at my last place I always got there on time!"

◆ ◆ ◆

Abraham Lincoln once attended a charity bazaar and tendered a $20 bill in payment of a bunch of violets. Getting no change he lowered his hand and touched the girl's wrist. "And what may this be," he asked. "Why that's my wrist," said the girl blushing. "Thanks for telling me," said the President dryly. "With things as high here as they are I thought it might be your ankle."

◆ ◆ ◆

The first morning after the honeymoon, the husband got up early, went down to the kitchen and brought his wife her breakfast in bed. Naturally, she was delighted. Then her husband spoke: "Have you noticed just what I have done?"

"Of course, dear; every single detail."

"Good. That's how I want my breakfast served every morning after this."

◆ ◆ ◆

"Your honor, I was not intoxicated."

"But this officer says you were trying to climb a lamppost."

"I was, your honor. A couple of big crocodiles were following me, so who wouldn't under the circumstances?"

◆ ◆ ◆

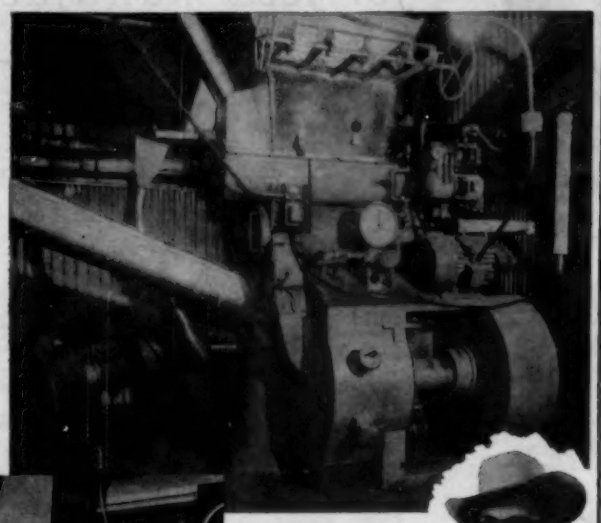
Remember . . . telephone poles hit cars only in self defense.

◆ ◆ ◆

A bishop spotted a newspaperman making notes on his talk. Later, he approached the reporter and asked that no jokes be used. The bishop explained that he wanted to use them at other churches in the area. The newspaper next day included this statement: "The bishop told some good stories which cannot be repeated."

Proving the Versatility and Performance of Wenger Multi-Duty PELLET MILLS

Although engineered primarily as a hard pellet mill, the Wenger Multi-Duty is exceeding expectations in every field of feed processing. For producing hard pellets (with or without liquids) Wenger blended mash feeds, and with Hi-Molasses pellet extruder available as an optional extra, the Multi-Duty represents the greatest advance in feed processing in many years.



FOR ECONOMY—

- in total equipment cost
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- in minimizing contamination hazards

No other pellet mill is the equal of the Multi-Duty.

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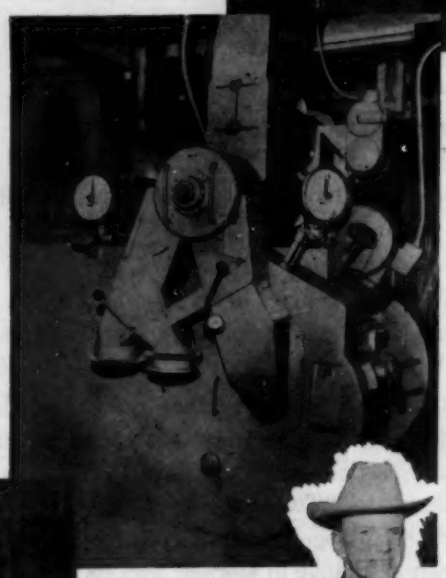

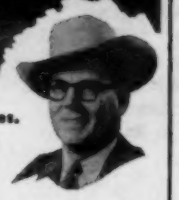

Mr. Ray Steel, Vice Pres. Indianola Operations, Honeggers', Inc. Indianola, Iowa

Honeggers' 100 HP Multi-Duty Pellet Mill which is used in producing both hard pellets and Hi-Molasses pellets in their new mill at Indianola, Iowa.

Mr. Steele says "Our new Wenger Multi-Duty does even better than we had hoped for. I'm sure this machine is the answer to the need in the feed industry for a smaller, but still a more efficient feed manufacturing plant."

Mr. Larry Jenkins, President Texas Feed & Cattle Co., Kilgore, Texas

Wenger's 100 HP Multi-Duty Pellet Mill with built in liquid conditioning feeder for fats and molasses is the heart of their fine new mill.

Mr. Jenkins says: "We are obtaining optimum quality control in blending liquids in our Wenger Multi-Duty Pellet Mill with excellent tonnage and a minimum of fines."

Mr. Wendell S. Haley, Manager Ashland Cooperative Exchange Ashland, Kansas

Ashland is using a new Wenger 50 HP Multi-Duty Pellet Mill to make Hard Pellets and Hi-Molasses Pellets as well as molasses meal feeds.

Mr. Haley states that, "In my opinion the Multi-Duty is tops in performance and the Wenger Company is tops in service and 'follow thru'."

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says **JOHN L. EMERY,** *General Credit Manager of The Quaker Oats Company, in this report to Ful-O-Pep Feed Dealers*

JOHN L. EMERY, a native of Iowa, came to The Quaker Oats Company in 1953 after extensive experience in the banking business. Three years later he was promoted from Credit Supervisor to General Credit Manager.

"We are proud that a Ful-O-Pep Dealer is able – with Quaker's tailor-made financing—to grow beyond the limits of his own invested capital.

"The primary aim of the credit department of The Quaker Oats Company is to promote sound financing for alert, profit-minded dealers and successful feeders. Our trained credit people are familiar with your problems. We study your needs, and travel into the field with you to obtain on-the-spot information. As a result, our credit recommendations are designed to fit your particular situation.

"These challenging times offer big opportunities to dealers and growers. The trend to larger feeders means you, the dealer, must equip yourself to give them the service they demand. Quaker's credit plans are helping Ful-O-Pep Dealers expand facilities, offer more customer services, and promote new business.

"The feed industry believes manufactured feed sales will expand over 50% by 1970. If you are credit-worthy and are eager to grow with these rising sales faster than your capital permits, see your local Ful-O-Pep Man.

"Opportunity for growth for you, with sound financing, is the main job of our Credit Service."

John L. Emery

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Insist that Triangle Brand Copper Sulfate be included in your regular feedstuff mixture.

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RUMINANT

(Continued from page 10)

literature concerning the mineral requirements of young swine.

Summaries of the papers follow:

ROLE OF SODIUM AND POTASSIUM CATIONS IN VOLATILE FATTY ACID METABOLISM OF RUMINANTS—"Although it is premature to cite specific practical applications, it would seem from the data presented that in the not too distant future, primarily grain diets will be feasible for ruminants and that how much hay or grain is included in the ruminant ration may be governed primarily by the respective prices of these commodities."

This observation was made by Dr. Gennard Matrone of North Carolina State College after discussing research dealing with the above listed subject.

At the outset, it was noted that purified diets adequate for non-ruminants have been unsatisfactory for ruminants. However, new insight was gained by recent information that practically all energy constituents of a normal hay diet are converted to volatile fatty acids, of which acetic, propionic and utyric predominate. It was reasoned that the peculiarity of ruminant nutrition might be in the kind of substrate in the diet serving as the primary source of energy rather than in terms of new nutritional entities. The initiation of an investigation of purified diets for ruminants with this concept of energy metabolism led to the experiments reported in a paper by Dr. Matrone and associates.

After detailing the work, he said: "Our results indicate that bulk or roughage is not an essential in the diet of ruminants and that a purified diet devised for simple stomach animals is suitable for ruminants providing that the diet is adequately supplemented with Na and K cations in the form of bicarbonates. At least one important role of these cations in purified diets is most probably associated with the buffering capacity in the rumen. The essential feature of our hypothesis is that with a normal diet the slowly formed ruminal acids are buffered by the mineral cations of the circulating saliva which is rich in Na bicarbonate. With roughage-free diets or diets high in readily fermentable ingredients, rumination is decreased with a concomitant decrease in flow of saliva, thereby decreasing the buffering capacity in the rumen.

"Current studies on VFA formation in the rumen suggest that dietary Na and K bicarbonates also shift the ratios and quantities of ruminal end products from acetic to the propionic side. In view of work reported by Armstrong and associates, it is conceivable that increasing the propionate might also increase the productive energy of the ration by decreasing the heat increment associated with acetic acid metabolism. This premise might explain the results obtained with dietary glycerol since Johns has shown that glycerol is broken down slowly in the rumen and gradually is converted primarily to propionate. Presumably feeding glycerol might be similar to furnishing the animal with a continuous supply of propionate."

In summary, Dr. Matrone said that the findings indicate that sodium and/or potassium cations play an important role as ruminal buffers in the nutrition and physiology of the ruminant. Conceivably, the role these buffers play in the ruminal environment effects shifts in the quantities and ratio of the end products, which in turn affect the productive energy of the diet."

PLANE OF NUTRITION AND LIVESTOCK PERFORMANCE—An extensive discussion of this subject was presented by Dr. J. T. Reid of Cornell. He summarized the paper as follows:

"Plane of nutrition has a marked effect upon the physical form and chemical composition of the carcass, the amount and composition of milk produced, and the reproductive performance of farm animals. The time or stage of life when imposed determines the ultimate effect of a given plane of nutrition.

"The time-plane of nutrition interaction which determines the shape and composition of meat-producing animals is the result of the differential priority for nutrients and the different rates of development of the body tissues, organs and parts.

"The cumulative effects of a high plane of nutrition for a brief period prior to ovulation (resulting in multiple ovulations), a low plane of nutrition after mating (resulting in a high rate of embryonic survival), and a high plane of nutrition beginning near the end of gestation to prepare for lactation favor a large number of living offspring.

"Milk production is influenced more by the plane of nutrition imposed concurrently than by that provided during the rearing or dry period. Although much additional study is needed, the productive life of the dairy cow appears to be inversely related to the plane of nutrition provided during the rearing period."

THE PLACE OF FEED ADDITIVES IN RUMINANT RATIONS—"Dramatic responses from addition of certain supplements to specialized rations, such as corn cobs, for example, have led some feed men and feeders to conclude that these supplements are not only desirable but even necessary for maximum responses and efficiency with all rations," said Dr. J. K. Loosli of Cornell. "A factor which has hindered the scientific progress of sorting useful feed additives from the others has been premature publishing by scientists of positive results from limited data and their great reluctance to present the data when results are unfavorable.

"It is interesting to note the Oklahoma report that no consistent responses in rate of gain or feed efficiency resulted from a series of different supplements to a ration of corn or sorghum silage, milo and soybean meal. They studied, alone or in combinations, alfalfa hay, molasses, urea, condensed fish solubles, fermentation solubles, live cell yeast, B-complex vitamins, vitamin A, steamed bone meal, trace minerals, chlortetracycline and a thyroid inhibitor. Purdue Supplement A was no better than soybean meal alone. Only stilbestrol significantly increased the rate of gain."

In a review of scientific literature on additives in ruminant rations, Dr. Loosli did not indicate general widespread benefits from additives other than stilbestrol. His review included the following:

"There is wide use and generally favorable results with stilbestrol as a feed additive or implant in growing-finishing steers. . . . It is evident (from a Wisconsin report on stilbestrol) that steers fed stilbestrol gained faster and required less TDN for each unit of gain in agreement with the many previous reports. . . . The actual dry matter content of the meat in the entire carcass was increased relatively little. The efficiency of nitrogen utilization was increased slightly, but the feed energy was not used more efficiently. It was concluded that the true gain in food production was much less than commonly supposed from feedlot gain and efficiency data.

"Fattening lambs have generally responded to stilbestrol feeding or to implants. . . .

"The use of broad spectrum antibiotics in milk replacers and starters for dairy calves has become well established. Many people do not recognize, however, that the true value of these antibiotics is largely limited to their role in controlling digestive

disturbances and reducing death losses of calves during the first few weeks of life. The small increase in growth rate and feed efficiency is inconsequential because dairy calves are commonly permitted to grow at only about 50% of their inherited rate for economic reasons. . . .

"Recent controlled studies on chlortetracycline for dairy cows seem to be largely negative, although final evaluation must wait until full details of tests in progress have been published.

"In fattening beef cattle the tetracycline antibiotics have often shown a small advantage in rate of gain, but some trials have shown no response. . . . Improved feedlot gains of fattening lambs from feeding chlortetracycline have been observed, but possible effects in preventing 'over-eating' disease still seem to be open to some question. . . . The Pfizer group reported that oleandomycin improved rate of gain of fattening lambs and increased feed efficiency.

"Results from feeding arsenicals and nitrofurans to calves and lambs have been mostly negative. . . .

"In vitro studies with rumen microorganisms demonstrated that valeric and iso-valeric acids increased cellulose breakdown. Tests with animals have shown that addition of these acids did not increase utilization of a straw ration by steers. . . .

"The feeding of live cell yeast . . . has been shown to be entirely ineffective in controlled tests with beef cattle in Oklahoma or milking cows in Michigan. . . . Trimethyl alkylammonium stearate (dynafac) did not give a response in milk yield, fat test or feed intake with dairy cows. Only two of eight trials with fattening beef cattle showed faster gains with dynafac than on the control ration. . . . Attempts to confirm Iowa results showing tapazole increased rate and efficiency of gain of fattening cattle have been entirely negative. . . .

"Burroughs et al. have reported that in four experiments the addition of a crude enzyme preparation (Agrozyme) increased gains of fattening steers 12% when full fed ground shelled corn containing 10 or 14% moisture. . . . These workers believe the enzyme responses may explain their earlier observations that high moisture corn had a higher feeding value for fattening cattle than low moisture corn. Is this another case like western barley for chicks, or will responses be found with many rations? . . . The responses in Iowa tests emphasize the importance of finding the true place of various enzymes in nutrition of cattle and sheep of all ages. . . .

"Subsequent research has failed entirely to show any beneficial effect on dairy calves from inoculation with fresh cud material, with rumen protozoa, or with dried rumen materials and the dried material gave no response with milking cows."

SOME PRACTICAL ASPECTS OF THE SENSE OF TASTE IN DOMESTIC ANIMALS — "The conclution is obvious that man cannot use his senses as a guide for what will appeal to or offend a domestic animal," said Dr. Morley R. Kare of Cornell in concluding a report on taste research. "The scientific exploitation of the animal senses in husbandry has hardly begun. The results to date suggest it will be a fruitful area for investigation."

On the basis of at least some of the animal flavors commercially available, he said, a "skeptical view is more than justified. Popular interest in feed flavors rests largely with increasing feed consumption. Under some circumstances this may be possible; it certainly has yet to be established that it is desirable."

Dr. Kare cited extensive Cornell work showing that the chick can taste. He also observed that the fowl's reaction to some taste stimuli is not parallel to that of humans. For example, the fowl is indifferent to the common sugars humans call sweet.

In a recent study on ability of flavor to influence feed and fluid intake, at the highest level of flavor used, the birds ate little more than enough to stay alive. Only one tenth of this concentration of flavor was necessary in the water to reduce fluid intake 40% below the controls. This work suggests that the taste of feed additives would not, at levels commonly used, influence feed intake. On the other hand, taste could be of practical consequence when a medicament is administered in water.

"While the chicken has generally been described as lacking a sense of taste, many taste preferences have been ascribed to the ruminant," said Dr. Kare. "Some of these notions such as the partiality for anise are as inaccurate as they are widespread.

"The ruminant has a sense of taste; for example, it will exhibit a high degree of preference for a 1% sucrose solution. However, the calf fails to discriminate between sugars on the basis of sweetness as humans would.

"We have been working in applying coatings to various types of pellets to make them more attractive. . . . Is there any point in making feed more acceptable? Certainly we are not interested in improving an already acceptable feed unless we can demonstrate that the animal will eat

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*U. S. Dept. of Agriculture Marketing Research Report No. 205

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DU-ALL . . . Utility Bulk Feed Body. Does double duty: 1. Automatic self-unloading of bulk feed; hydraulically-operated discharge auger unloads 250-500 lbs. per minute. 2. General hauling. Close discharge ports and Du-All hauls livestock, produce, farm equipment, building supplies, etc. Bulletin A-420.

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ONE MAN OPERATION — of entire operation, including speed of discharge and positioning of discharge auger through full 280° sweep. Convenient controls are on side of body.

CHOICE OF DRIVES . . . LENGTHS — The SF-8 is available with Power-Take-Off or Auxiliary Engine Drive . . . in lengths from 10' to 40' . . . either truck or trailer mounted. Also available in aluminum for increased payloads.

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more or will be more productive or efficient. . . .

"A 15-week trial with 'candy coated hay pellets' for growing heifers was carried out. Where animals had a choice, the coated pellets had a substantial preference. Initially all animals with access to coated pellets consumed more than the controls, but this advantage diminished after one or two weeks and soon disappeared. However, when a short transient stimulation to appetite is desirable, there might be advantages. . . .

"In studies with pigs, it was apparent that a high degree of preference for some materials could be established. On the other hand, indiscriminate use of these flavors could obscure temporary gains.

"The positive results summarized here will not necessarily apply under all practical conditions. We recognize at least several dozen variables that can influence acceptability of feed. . . . Without considering all the factors related to taste, it is obvious that generalizations applicable to most species and a wide variety of conditions cannot be made."

ROUGHAGE INTAKE AND EFFICIENCY OF FEED UTILIZATION IN DAIRY CATTLE—J. B. Stone, formerly at Cornell and now at Ontario Agricultural College, was senior author of a Cornell paper on this subject.

The data from 12 roughage experiments, involving 175 Holstein-Friesian cows, were analyzed to study the variation among cows in their roughage appetite and the efficiency of utilization, it was noted in a summary of the report. Highly significant differences were found among cows in their roughage dry matter intake even after adjustment had been made for milk production, body weight and daily changes in weight.

The repeatability of the weekly average of roughage dry matter consumption on a within roughage treatment period and year basis was found to be of the order of .70. Cows tended to maintain their rank in roughage consumption when fed several different kinds of roughage. The difference among cows in their efficiency of feed utilization was also highly significant. The average efficiency for 20 weeks, starting 60 days after calving, was a requirement of 56.7 lb. of TDN for each 100 lb. of FCM produced.

Consistent and highly significant differences in efficiency were found in favor of grass silage as a roughage source as compared to hay. Some possible explanations of this were discussed.

POSSIBLE USE OF SYSTEMIC INSECTICIDES INCLUDED IN FEED—Dr. John G. Matthysse of the Cornell entomology department said that inclusion in feed is one of the most promising developments in livestock and poultry pest control by systemic insecticides.

He first discussed several compounds which have received attention as systemic insecticides. None of the feed additive uses are commercially usable as yet, it was noted.

TABLE 1. Mineral Requirements of Young Swine

Mineral	Minimum requirement
Ca	0.7% of ration[1]
P	0.5% of ration
Na	0.09% of ration
Cl	0.12-0.13% of ration
K	0.23-0.28% of ration
Mg	0.04-0.05% of ration
Mn	40 ppm[2]
Fe	100 ppm[3], 8-10 mg./day[4]
Cu	0.7 mg./lb./day[5]
I	0.35 ppm
Co	Not known
Zn	46 ppm[6]
Se	Not known
S	needed as a constituent of sulfur-containing amino acids

[1]0.5% was adequate in some studies.
[2]Growth response has been obtained by the addition of Mn to supply 50-55 ppm in some studies; no growth responses above 0.5 ppm in others. More work needed to determine factors responsible for variable results.
[3]Baby pigs fed synthetic milk.
[4]Intramuscular injections.
[5]Variable response in growing pigs to supplemental copper indicates need for more research on copper requirements and factors affecting it.
[6]Adequate when ration contains 0.6% Ca; requirement may be increased with higher calcium levels.

The Dow Chemical Co. is seeking label clearance for Trolene in feed, but it will be a longer time before Ruelene is available for use. Experimentally, the 25% wettable powder can be used directly for mixing, and both mineral and organic base premixes may be made available. Also, the liquid concentrates may be used for spraying into feed in the mill. Trolene may not be adaptable to pelleting as breakdown occurs at these higher temperatures. Ruelene can be included in pellets. Cost will be high but still within practical limits—75¢ to $2 per animal for Trolene for cattle grub control, depending on weight.

Seasonal use will be very limited at the outset, Dr. Matthysse noted. He said dairy cattle use will be slow in coming as milk residues are produced by these compounds.

While poultry research has lagged behind, several compounds have been found safe to include in poultry feed, and preliminary indications point to probable mite and louse control.

GRAIN RECOMMENDATIONS FOR DAIRY COWS CALCULATED BY ELECTRONIC COMPUTERS—Dr. S. T. Slack of Cornell pointed out that electronic data processing machines are being used in 41 states in processing of dairy herd records for dairymen as well as for research purposes. This system provides the dairyman each month with complete up-to-date reports on production and feed records for each cow in the herd and the herd as a whole.

Dr. Slack's presentation was made to acquaint the feed industry with the use of accumulated data on feed records of each cow in the herd and how this material is being used to provide the dairyman with feeding recommendations on an individual cow basis.

He said that reports of dairymen indicate that when roughage is accurately reported, the concentrates recommended can be followed almost literally and with excellent production results. However, judgment and cow sense must be used. The skillful feeder will also take into consideration body condition, individual variations in appetite for roughage, age, udder health and stage of lactation.

RELATIONSHIP BETWEEN SELENIUM, MUSCULAR DYSTROPHY AND OTHER FACTORS IN ANIMAL NUTRITION—Dr. D. E. Hogue of Cornell reviewed research in this field and told of recent Cornell experiments with sheep and calves on the effectiveness of selenium and vitamin E in preventing muscular dystrophy.

Natural occurring muscular dystrophy in lambs and calves has been shown to be prevented with vitamin E, he noted in summarizing the paper. Selenium is also effective in lambs, although placental and mammary transfer of selenium and vitamin E may not be sufficient for complete protection.

Apparently certain inhibitory-like factors are present in some feeds which may enhance muscular dys-

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trophy in lambs and calves. Selenium apparently will not overcome muscular dystrophy produced by including cod liver oil in the ration.

Dr. Hogue also presented a table showing the selenium content of several feedstuffs.

MINERAL REQUIREMENTS OF YOUNG SWINE—Dr. W. E. Pond of Cornell presented a review of recent literature concerning the minerals required by young swine. The present knowledge of quantitative requirements is summarized in Table 1.

The quantitative requirements of most of the minerals, he noted, have not been established completely enough to permit segmenting into various periods from birth to market weight, although such information would be useful.

"A striking feature," said Dr. Hogue, "is the extreme importance of mineral interrelationships in influencing performance. The classical example is the calcium-to-zinc interrelationship, but the possibility of analogous circumstances with other minerals should not be ignored."

Value of Tranquilizer Reported Questionable

LAFAYETTE, IND.—Winding up an experiment aimed at determining the effect of tranquilizers in combination with antibiotics on fattening beef calves, Purdue University scientists have concluded the value of tranquilizers as feed additives is "questionable," according to a Purdue report.

Research at Purdue in 1958 indicated that feeding of 2.5 mg. of hydroxyzine per steer daily, along with implanted stilbestrol and oral Terramycin, would increase daily gain and feed efficiency.

However, on the basis of new findings, the Purdue scientists conclude that the response of cattle to the drugs is not "very consistent." The levels of tranquilizers fed in the 1959 experiment were not high enough to cause any calming effect, they reported.

Feeding of the tranquilizers—hydroxyzine, reserpine or trifluomeprazine—to steers implanted with stilbestrol or in combination with Aureomycin or Terramycin failed to produce any significant change in either daily gain or feed efficiency, it was reported.

The Purdue researchers said they have concluded that tranquilizers have their greatest potential use in reducing shipping shrink and shipping fever, eliminating shock of weaning young animals, and calming animals for ease of handling.

Regardless of the lack of effect of tranquilizers, they said, the Purdue experiment demonstrates that a ration of ground shelled corn full fed, 2 lb. Purdue Supplement A and 16-18 lb. of corn silage daily, plus minerals, is a very economical way to fatten steers. Cost per pound of gain ranged from 13-14¢.

Latest Rulings in Labor Relations

DO YOU HAVE TO PAY SICK LEAVE FOR A DISCHARGED EMPLOYEE ?

SORRY, CHARLIE, WE'RE LETTING YOU GO ON FRIDAY. WE'LL MAIL YOUR FINAL CHECK TO YOUR HOME.
GOSH, MR. JONES, YOU KNOW I'M A SICK MAN.
GEE, THEY STOPPED MY SICK-PAY FRIDAY TOO.
HOW COULD THEY BE SO MEAN?
I WENT HOME SICK THURSDAY, AND MY CHECK INCLUDED NO PAY SINCE FRIDAY.
THIS MAN IS ENTITLED TO SICK-LEAVE.
CHARLIE LEFT OUR EMPLOY FRIDAY.
ARBITRATOR'S DECISION
NO, A DISCHARGED PERSON IS NOT AN EMPLOYEE AND HAS NO RIGHT TO SICK-LEAVE PAY.
Based on a 1959 California Decision

INCORPORATION

EUDORA, ARK.—Warren Coody Grain & Elevator Co. of Arkansas, Inc., has filed articles of incorporation to operate a grain, grain elevator and farm products business. The company will handle a complete line of farm supplies, including fertilizers, insecticides and herbicides. Incorporators were Luke J. Warren, Carolyn Warren Coody, Joe Lee Warren and Jack Coleman, all of Lake Providence, La. William H. Drew of Lake Village was named the firm's agent.

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Simmons Cotton Oil Mills
Pacific Vegetable Oil Corporation
General Foods Corporation

Canada Linseed Oil Mills
Sherwin-Williams Company
Toronto Elevators, Ltd.
Riverside Oil Mills
Planters Manufacturing Company
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HELP WANTED

DIRECT FEED SALES — REPLACEMENT needed for established area, central Indiana. Training program, salary and draw. E. M. Peet Manufacturing Co., Box 224, Frankfort, Ind.

EXPERIENCED, AMBITIOUS SALESMEN or manufacturer's representatives by established, expanding company. Exclusive and unusual products in animal health and nutrition field. Territories open coast to coast. Replies confidential. Our representatives know of this ad. Address Ad No. 5358, Feedstuffs, Minneapolis 40, Minn.

WANTED—SALESMEN NOW CALLING ON grain dealers, feed stores and any place that has a rat or mouse problem. This item can pay your traveling expenses and is highly effective on rats and mice especially around grain of any sort. If interested please contact the Wilnite Corp., Box 754, North Platte, Neb.

SALESMAN — NATIONAL FEED MANUFACTURER seeking salesman experienced in agricultural field for work in Michigan territory. This is an opportunity to establish a satisfying career in a growing industry. Write with qualifications to W. G. Stokes, District Sales Manager, 12730 Beck Road, Plymouth, Mich.

DISTRICT SALES MANAGERS-SALESMEN —Manufacturer animal health products, antibiotic vitamin mineral supplements. Territories open Indiana, Illinois, Iowa, Wisconsin, Michigan, Pennsylvania, New York, other states. Expenses, salary, commission. Give details, experience, references. Address Ad No. 4610, Feedstuffs, Minneapolis 40, Minn.

FIELD SUPERVISOR FOR MANUFACTURER of high-potency feed concentrates. Must know feeds, how to sell to farmers, how to train and supervise men in direct-to-farm selling. Away from home five days a week. Position offers salary, bonus, expenses and car. Write in detail giving references. Address Ad No. 5363, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURER'S REPRESENTATIVE — Well known manufacturer has opening for man now calling on feed dealers to sell special fast selling product to dealers, good commission, payable monthly, full credit on repeat business, excellent sales promotion program. For details give territory now covering and how often. All replies confidential. Write R. F. Davis, Box 5020, Minneapolis 6, Minn.

SALES ENGINEER REPRESENTATIVE for the leading grain drier manufacturer, familiar with grain driers and accessories such as elevator legs, conveyors, etc., usually used in connection with grain driers. If grain drier experience is not available, must have knowledge in grain handling and storing. Territory open east of Mississippi with headquarters either in Michigan, Illinois, Indiana, Ohio, or on the eastern shores. Emphasis to be on sales. Will furnish car, expenses, commission plus salary. All correspondence held confidential. Address Ad No. 5317, Feedstuffs, Board of Trade Bldg., Kansas City, Mo.

TRAFFIC MANAGER

Man with 8 to 15 years' experience in industrial traffic management. College degree in transportation preferred. Must be completely familiar with laws and rules governing transportation. Experience in feeds, grain and fertilizers helpful. 34 to 42 years of age. Must be willing to relocate. State education, experience, salary, history and salary requirement in letter to: Ad No. 5390, Feedstuffs, Minneapolis 40, Minn.

HELP WANTED

SALES ENGINEER — FAMILIAR WITH feed milling machinery, pellet mills, coolers, liquid blending equipment, feed mill layouts. Age 30 to 40, engineering background, heavy emphasis on sales. Interested in high earnings $15,000 per year or better. Travel Monday through Friday. Sober and reliable. Only man possessing above qualifications and presently successful need apply. Address Ad No. 5199, Feedstuffs, Minneapolis 40, Minn.

ASSISTANT TO THE MANAGER — NAtionally known, growing, medium sized grain mill. Middle West location. Will assist manager in grain merchandising, milling, elevator operation, sales personnel, public relations and general administration. Excellent management position with opportunity for growth for young man with milling industry experience. Salary commensurate with experience. Address Ad No. 5364, Feedstuffs, Minneapolis 40, Minn.

SITUATIONS WANTED

AGRICULTURAL RESEARCHER EXPERIenced in animal nutrition and health products seeks a change to technical sales or administration. Address Ad No. 5203, Feedstuffs, Minneapolis 40, Minn.

TOP MAN IN AGRICULTURAL ADVERtising and public relations. Eleven years' experience. Agricultural college graduate. Will relocate. Address Ad No. 5369, Feedstuffs, Minneapolis 40, Minn.

BUSINESS OPPORTUNITIES

FOR SALE—FERTILIZER, FEED, SEED business. Good community, good volume. Northern Iowa location. Address Ad No. 5371, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—MODERN BULK FEED MILL with approximately 12,000 tons mixed feed sales yearly. Located in Southern California. Address Ad No. 5352, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — FEED MILL, COMPLETE with pellet mill, mixers, hammermills for bulk or bagged feed operation. Located in broiler and turkey area at Middlebury, Ind. Address Ad No. 5389, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — SEVERAL GOOD GRAIN elevators and feed mills in Indiana. Financing can be arranged. When buying or selling a grain or feed business, call us. Boyer & Nail, Real Estate Brokers, Milroy, Ind.

FOR SALE—TO SETTLE ESTATE, FEED plant and produce business in the heart of the Red River Valley. Incubators and other equipment can be purchased separately. Call or write George E. Sorlie, Hillsboro, N. D.

FOR SALE—CENTRAL OHIO. SEVERAL modern grain elevators and feed mills all with complete custom grinding and mixing equipment. C. T. Hartman, 1024 Beechview Drive, Worthington, Ohio; Byron C. Jilek, Realtor.

FOR SALE—90-ACRE POULTRY FARM. 63,600 sq. ft. buildings, concrete floors, abundant water, roads, utilities, near major Midwest markets. Ideal pullet and egg farm. Equipment and 20,000 laying hens and pullets optional. Reasonable. Address Ad No. 5391, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—LONG ESTABLISHED FEED and animal health business. Wholesale-retail, 100 dealers, four states, $300,000 sales, own and national brands. Sell inv.-accts.-equipment, lease or sell real property. Best location Middle West. Will separate. Business increasing rapidly, also owner's age. Address Ad No. 5387, Feedstuffs, Minneapolis 40, Minn.

MACHINERY FOR SALE

ONE SPROUT-WALDRON PELLET MILL with 50 H.P. motor and starter, $2,000. S & W Mills, Archibald, Ohio.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—DAFFIN MOBILE MILL, 2 years old. Mounted on Chevrolet truck. A-1 condition. Fertile Valley Hatchery, Fertile, Iowa; Phone 3502.

FOR SALE—GOOD, USED SELF-UNLOADing bulk feed bodies in all makes, models, sizes and price ranges. Gaddis Bros. Mfg. Co., Inc., Walford, Iowa.

JAY BEE ALL-IN-ONE PORTABLE FEED mill. Good condition. Reason for selling—change of activities. Address Ad No. 5392, Feedstuffs, Minneapolis 40, Minn.

12½-TON TOLEDO DIAL SUSPENSION hopper scale, like new, 32 inch dial, Model 2500. Address Ad No. 5381, Feedstuffs, Minneapolis 40, Minn.

1955 DAFFIN MOBILE MILL ON 1955 Ford truck. Very good condition. Price $8,950. Write Menton's Feed Service, Box 22, Pemberton, Minn.; Phone 2101.

ONE 30x40 WILLIAMS HAMMERMILL with 200 H.P. motor, 1,750 R.P.M. One 6R36 Gruendler breakdown mill for baled hay with 150 H.P. motor. Napoleon Alfalfa Mills, Napoleon, Ohio.

SALE—TYPE 304 STAINLESS STEEL DRY material handling installation, including: 1,800 cu. ft. weigh hoppers, bucket elevators, shaker and screw conveyors, etc. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

FOR SALE—NEW AND RECONDITIONED Richardson, and O K bagging scales; Union Special, Fischbein, Minneapolis, and Wilcox & Gibbs sewing heads. Whizzer bagging conveyors, bins. Winborns, Mill Equipment Service, Williamsburg, Iowa.

USED PORTABLE MILL EQUIPMENT

The following pieces of used portable mill equipment are offered for immediate sale. All machinery has been completely reconditioned. This equipment is priced far below present market prices.

1—1957 B & L Portable Mill
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Discount for cash or terms available. Can be inspected at Iowa Portable Mill Co. offices in Oelwein, Iowa. Write or phone 111 today.

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FOR SALE—ENCLOSED MOTORS; RICHardson Scale; truck scales, hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FOR SALE—ONE 2-TON STRONG-SCOTT triple action horizontal mixer, year and half old; one ton size Blue Streak twin spiral mixer; one 2-ton Howell mixer, two years old; all in good condition with motors and starters, write or phone Midwest Milling Equipment Co., 1502 Truman, Eau Claire, Wis.

FOR SALE — QUICK CHANGE SCREEN 75 H.P. Prater grinder, drag and 15 H.P. motor, 7½ H.P. blower, Union Machine corn sheller, 150 ft. elevator cup belt, legs and boot, Prater corn cracker, grain cleaner, 1-ton Prater mixer, 1-ton Fairfield mixer, 2-ton Prater mixer, Union Special sewing machine. Address Ad No. 5376, Feedstuffs, Minneapolis 40, Minn.

100 H.P. ACE SPROUT-WALDRON PELlet mill, complete with motor, coolers, Pneu-Vac air system; 60 H.P. Sprout-Waldron pellet mill and cooler; 50 H.P. heavy duty California pellet mill; 3-ton S. Howes Eureka horizontal mixer, with silent chain drive and 40 H.P. motor. Call or write J. E. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.; Phone 6-2197.

MOBILE MILL — NEW GUARANTEE ON 471 General Motors diesel (120 H.P.). Heavy duty industrial hammermill with magnet; 2 to 3 ton mixer (140 bu.), extra large space for carrying sacked feed. Also space for 4,000 lb., 8 compartment bulk concentrate bin. All on 1956 S-160 2-speed "cab-forward" International with new motor last week. Written guarantee on complete unit backed by deposit your bank. Priced to sell at only $8,850. Call Advance Farm Service, Madison, S. D.; phone Clinton 6-4266.

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

ELECTRO-MAGNET, SUSPENDED TYPE, general industrial model, rated 1045 watts, D.C. Address Ad No. 5375 Feedstuffs, 551 Fifth Ave., New York 17, N. Y.

WANTED—GOOD USED CALIFORNIA HYflo pellet mill and California Master. Santa Ynez Grain & Milling Co., Santa Ynez, Cal.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

MISCELLANEOUS

ELEVATOR AND FEED MILL LIQUIDAtions. Let McLaughlin, Ward & Co. handle sales of equipment in unwanted plants. None too large or too small. We will sell for you or buy outright complete plants anywhere in U.S.A. We are large handlers of grain, feed and seed equipment. McLaughlin, Ward & Co., phone State 9-8141; ask for A. L. Ward, Jackson, Mich.

USED MOISTURE TESTERS—Don't pay a fancy price for a new tester when we can sell you an excellent factory reconditioned instrument. All popular makes available. Prices start at $125. Send for FREE CATALOG on grain and seed testing and handling equipment. Burrows Equipment Co., 1316 Sherman Ave., Evanston, Ill.

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Feed & Grain Handling & Processing Equipment

NEW & USED

Scales, Hammermills, Feed Mixers, Sewing Machines, Elevators
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We have openings for territory managers and assistants in Michigan, Wisconsin and Illinois territories. Sales experience in formula feeds or an agricultural background desirable.

You would be selling a complete line of high quality feeds through dealers. Sales backed by experienced nutritional researchers and aggressive advertising.

Limited traveling, company car, paid expenses, salary plus high potential earnings from bonus commissions.

Please mail your complete resume to G. M. Prust.

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Corn Price Forecast

What is going to happen to the price of corn? Where do we stand in comparison with the price patterns of the past two years?

You can get a good idea as to the present outlook of the price of corn by looking at Exhibit 1. Here is shown the Kansas farm price of corn by months, since January, 1958, with a forecast through July, 1960. The forecast was made as of Nov. 1, and is the solid line. The shaded area around this line indicates the most likely range in prices. I call it the "uncertainty" band.

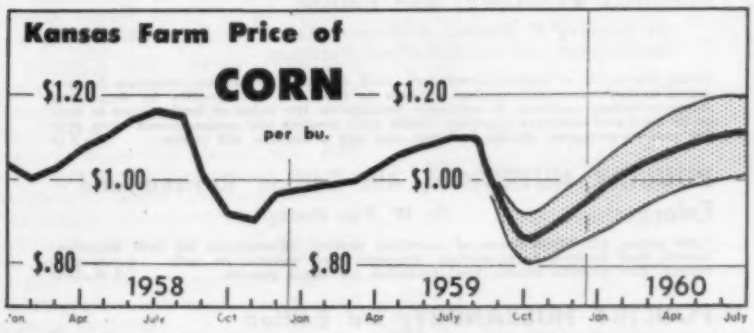
As you can see, the price of corn has followed a recovery pattern beginning at about the season's low price during harvest reaching a high point in July in both 1958 and 1959. This is a typical pattern and is followed more years than not. You will notice the "uncertainty" band widens the further out the forecast is made.

Of course, corn prices may not react in a typical way this year. However, indications so far this season point to a slightly greater recovery than usual.

If you are in the market for corn, now would be about as good a time to buy forward 4-6 months as you're likely to have in that period of time. We probably have seen the bottom price this season as far as cash corn is concerned in Kansas.

Corn prices in other states will vary somewhat from the Kansas price, but the same general pattern usually is followed in most of the Corn Belt.

EXHIBIT 1. Corn Prices



Minnesota Schedules Feed Dealers School

ST. PAUL—Plans have been completed for the Retail Feed Dealers Training School scheduled Jan. 4-8 at the St. Paul campus of the University of Minnesota.

The program, conducted by university and industry personnel, arranged for this training course will deal with management, products and services. Program portions dealing with management will permit registrants to hear and take part in discussions in three functions of management: Effective business planning, organization and delegation of responsibility and education and control in business management. In products and services, the program will deal with livestock, dairy and poultry management and nutrition.

Only 50 registrations can be accommodated at the training course. They will be accepted on a first-come, first-served basis.

Three industry representatives will help out in the sessions. They are: W. H. Lenton, Farmers Elevator Co., Inc., Stewartville; George W. Kolb, vice president, Northwest Retail Feed Assn., Belgrade (Minn.) Flour Mill Co., and Joseph E. Donovan, Donovan's Inc., Albert Lea. All three will be joined by Prof. Richard Phillips, department of economics, Iowa State University.

Other industry personnel on the program and planning committee are: W. H. Donahoo, secretary, Minneapolis Grain Exchange; Alvin E. Oliver, executive vice president, Grain and Feed Dealers National Assn., Washington, D.C., and Lloyd Tobias, president, Northwest Retail Feed Assn., Pipestone (Minn.) Grain Co.

FEED COMPANY SOLD

LAMESA, TEXAS—Barnett & Ayers Feed & Seed Co., in business for more than two decades, has been sold to Ward Franklin and associates. They will operate the company as Farmers Market and Elevator, Inc. The new owners will continue to sell feed, seed and fertilizer, but they also will specialize in grain buying. Complete storage capacity for grain is around 42 million pounds.

Wirthmore Bulk Plant Planned in New York

CALLICOON, N.Y. — Charles and Alan Sommer, North Branch, N.Y., father and son distributors of Wirthmore Feeds, will operate a new Wirthmore bulk feed service out of Callicoon.

The new two-man plant, to serve farms within a 25 mile radius, consists of six 18-ton holding bins and a truck platform scale. It is designed for elevating feeds from beneath the railroad siding where bulk freight cars are unloaded and is equipped to unload feeds from hopper-type rail cars directly into bulk trucks.

Alan Sommer is presently in charge of the family poultry operation, consisting of 2,000 layers, 2,000-5,000 started pullets and 2,500 meat birds.

You'd be Surprised!

What you can do to increase your egg quality

One way or another, YOU pay for losses in handling eggs. With the high-speed equipment of modern automation, if the count is made *before* eggs are processed, and then "lost" anywhere along the line, YOU lose.

A large country plant reports getting as low as 50% yield at times last summer off high-speed equipment.

There's a practical answer if you believe that . . .

"QUALITY IS MADE BEFORE IT'S LAID."

No one has come up with a way to ADD Quality after the egg is laid. BUT—There IS *a difference in strains* based on genetic background and the ability of these eggs to "take it."

For its quality-egg program with feeders, a milling company is reported recommending five strains.

The Mount Hope QUEEN is one of them.

At 1959 Random Sample Tests, using four Best Tests and the 10 most popular National Strains, The QUEEN was second in Albumen Quality and Income.

You may want to suggest to your Producers that under the new USDA standards of "Fresh Fancy" quality, The QUEEN, with its all-'round quality, has "The Egg of the Future." Our many Franchised Hatcheries would like an opportunity to prove it. More details, if requested.

Mount Hope Poultry Farm, Inc.
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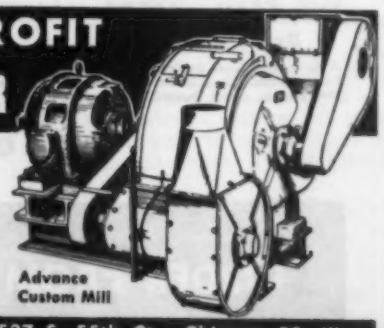

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Feedstuffs

FEEDS AND FEEDING, 22nd Edition

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Feeds and Feeding has again been entirely revised, because of the many discoveries made in nutrition and livestock feeding. In this 22nd edition, particular emphasis is placed on the new developments. The numerous experiments are summarized which have dealt with antibiotics, arsenic and surfactant supplements, and with hormones, including stilbestrol. Full information is given concerning requirements of various classes of stock for the vitamins, including B and the unidentified factors. The Appendix Tables are enlarged by 40%, with composition and digestible nutrients of 1,100 feeds **$9.50**

ANIMAL NUTRITION, 4th Edition (1956)

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It covers the standard, constantly-needed facts on feeding farm animals, and also the newly discovered facts about how certain acids, minerals, vitamins, etc., can help in raising healthier, more productive animals. 474 pages, 77 illustrations and tables **$8.00**

BEEF CATTLE, 4th Edition

By Roscoe R. Snapp

Covers breeding, feeds, feeding, economic trends, equipment, etc. Includes a report of hundreds of feeding experiments. Has a special chapter on sterility by Dr. Harry Hardenbrooks, Jr., assistant professor of veterinary medicine, University of Illinois. 641 pages **$7.50**

IN-PLANT COST STANDARDS

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MEAT OUTPUT

(Continued from page 7)

ative to inventories in 1960 will be very close to or a little higher than 1959. Prospective slaughter under such a projection would be about 6% larger than this year. Such a slaughter rate would allow cattle numbers to continue upward at a rather fast clip. The rise in slaughter reflects only the quicker buildup in number of young slaughter stock in this cycle.

SLAUGHTER WEIGHTS MAY EASE OFF—Part of the gain in cattle slaughter in 1960 could be offset by lower average slaughter weights.

CATTLE PRICES AT CYCLICAL HIGH—It seems likely that the small increase in cattle slaughter in prospect for 1960, together with a very large slaughter of hogs will take the bloom off cattle prices. A sharp break in prices is not likely, but a period that calls for wariness is being entered.

The level of cattle slaughter in prospect for next year indicates slowly downtrending prices generally. Prices of cows and feeder cattle likely will show greater declines than fed cattle. Seasonal price changes likely would be evident in these lower grades and a major part of the year's decline likely would be felt during late summer and fall.

CATTLE AND BEEF IMPORTS MAY BE LOWER—With the uptrend in domestic production and lower prices, imports of cattle and beef probably will decline next year although they will continue at relatively high levels. At the same time, the supply of processing meat from domestic production is not expected to increase greatly next year and sausage makers probably will be looking for additional supplies from foreign countries.

HOG SLAUGHTER TO BE LARGER THROUGH FIRST HALF OF 1960—More fall pigs will mean more hogs for slaughter in the first half of 1960. The increase over 1959 slaughter rates may be fairly uniform with a slight increase possible during the second quarter. Should a small reduction occur in the spring crop, as now seems probable, sow marketings late next spring would add more to slaughter supplies of hogs than they did last spring and summer.

1960 SPRING PIG CROP MAY BE DOWN SLIGHTLY—Since the 10 states reporting earlier intentions account for such a large part of the total crop, some decline in early farrowings is clearly indicated. Farrowing intentions for the main farrowing months of March-May in 10 states will be reported in December as well as December-May intentions for all states. Until then the probable size of the entire spring crop will be subject to considerable conjecture, but it currently appears likely that the 1960 spring crop will be down slightly.

HOG PRICES TO AVERAGE LOWER IN FIRST HALF OF 1960—Any seasonal recovery in hog prices in the early months of next year likely will be small and prices will continue below last winter's prices. Prices will likely show their season advance late in the spring or early summer.

HOG PRICES IN LAST HALF OF 1960—If the 1960 spring pig crop is down, as expected, hog prices in the last half will be close to or a little higher than a year earlier. For the year as a whole, hog prices will likely average a little lower than in 1959.

ANOTHER RISE LIKELY IN SHEEP INVENTORIES—The shorn wool incentive price for next year is 62¢ per lb.—the same as for the first five years of the program. Prospects are that sheep and lamb prices next year may average close to or only slightly below prices this year. Weather conditions will be a factor in the West. It appears likely that sheep numbers will continue their slow uptrend. Annual sheep and lamb slaughter would be in line with the gain numbers.

If slaughter lamb prices this winter average close to or a little above last winter's prices, as expected, chances are good for at least average returns in lamb feeding this season.

The strong demand for meat is expected to continue in 1960. Personal incomes are expected to be up next year. The inelastic nature of the demand for meat indicates that the increased quantities of meat produced next year will move into consumption at slightly lower prices. Hence, it appears likely that the consumer's dollar spent for meat in 1960 will be close to or only a little below this year's ratio.

EGGS, BROILERS

(Continued from page 1)

to become so large as to require a substantial diversion of current production to cold storage to clear the market. If by then there is no expectation of a substantial cutback in the number of replacement pullets being raised, shell and frozen eggs will move into storage only at low prices, perhaps almost as low as in the late spring of 1959.

If, on the other hand, USDA said, evidence of a cutback in chickens raised becomes apparent early in the spring, strong interest in storage will tend to sustain springtime prices.

Layer Numbers

Egg production in the first half of 1960 likely will be below 1959 because of the reduced flock. The number of layers Nov. 1 totaled about 312 million, 2% less than on the same date last year. This is the lowest number for the date since 1940. Laying flocks averaged 307,083,000 layers during October—down 1% from last year.

USDA reports that in the second half of 1960, egg output will be affected by availability of replacement pullets, but the possible reduction in such birds is likely to be offset by continued higher rates of lay.

Broiler Picture

Broiler production in the first half of 1960 is also likely to be below 1959. Chick placements since May have been below the year before, and they are likely to continue so until about mid-1960.

Since May there has been a cutback in the number of breeder-type pullets hatched for hatchery supply flocks. As a result, in about the second quarter of 1960 a smaller supply of hatching eggs may emerge as a temporary limiting factor in broiler production.

Turkey Production

Turkey production in 1960 is likely to be up to the 1959 record of 82 million birds, with more of the coming year's crop in heavy-breed birds and fewer in light breeds. If the 1960 crop comes up to the 1959 level, the price will likely be close to the prospective 1959 average of about 23¢.

CANCER CLAUSE

(Continued from page 1)

Mr. Flemming also said, " . . . We would oppose any attempt to take the cancer clause out of the food additives amendment, and we will support the inclusion of such a clause in the color bill which is now before Congress."

Thus, any effort to ease the feed industry and feeding problems by congressional removal of the so-called Delaney provision would appear to have strong official opposition.

Strength at Memphis In Oilseed Meal Futures

MEMPHIS, TENN.—Oilseed meal futures were generally higher on the Memphis Board of Trade this week, compared with a week earlier. The upturn continued to result mainly from the foreign demand for proteins, due to the drouth situation in Europe.

Speculative activity inclined toward the long side of the market, pit observers said.

At the close of the period, cottonseed oil meal suffered a decline on the report of some re-sale meal and profit-taking at these high levels. There was a belief that supplies may be more burdensome than at first anticipated. Cottonseed oil meal maintained an advance for the week.

Traders said that domestic mixed feed demand continued at a pace lower than last year at this time, with ratios still less favorable than a year earlier.

Memphis basis soybean oil meal closed unchanged to $1 ton higher; unrestricted soybean oil meal 25¢@ $1.45 higher, and bulk solvent cottonseed oil meal 50¢ lower to $1.75 higher. Only one contract was down.

Traded during the period were 900 tons of unrestricted soybean oil meal and 2,200 tons of bulk solvent cottonseed oil meal.

Centennial and United Pacific Discuss Merger

PORTLAND, ORE.—Two proposals will be submitted to directors of Centennial Mills, Inc., at a meeting Nov. 24, Moritz Milburn, president of Centennial, reported recently.

It was announced two weeks ago that negotiations are in progress leading to the combination of United Pacific Corp. and Centennial, "either through merger or stock acquisition."

Forty percent of the outstanding Centennial capital stock is owned by United Pacific Corp. and Mr. Milburn, the two largest stockholders.

Board members of the two firms met Nov. 3 and discussed the merger plans but took no action.

Centennial Mills recently closed out its Centennial-Crown Portland Feed division (Feedstuffs, Sept. 12).

MRS. V. D. LEVENS DIES

KANSAS CITY—Mrs. Gale Shirley Levens, 40, wife of V. D. Levens, president of Bruce Milling Co., Kansas City, died Nov. 10 at Menorah Hospital, Kansas City, where she had been a patient nine weeks.

Pillsbury Announces Plans for Flour Mill

MINNEAPOLIS — Plans for construction of a flour mill to cost more than $1 million have been announced by the Pillsbury Co.

The mill will have a daily capacity of 4,000 cwt. and will be built in Pillsbury's East Los Angeles complex which includes a million and a quarter bushel grain elevator, warehouses, refrigerated foods plant and the company's Los Angeles offices.

Design and engineering for the mill is nearly completed, says the Pillsbury Co. Construction will begin immediately. The company estimates that the mill will be in production during the fall of 1960. It will include pneumatic handling and bulk flour storage facilities.

Brokers Move

MINNEAPOLIS—Warner Brokerage Co., Inc., has moved to 4301 E. 50th St. here, according to an announcement by E. K. Warner, president.

DELMARVA

(Continued from page 1)

duction on Delmarva compared to the other major areas," he said.

Delmarva has been challenged by competing broiler areas to keep up with its competition or give up its markets. Delmarva has increased production from 128 million birds in 1954 to more than 180 million in 1958. This is a 41% increase.

On the other hand, North Carolina, Georgia and Alabama, collectively, have increased production from 261 million in 1954 to 555 million in 1958. This is a total increase of 294 million or 113%, almost a 23% annual expansion.

The rail movement to Delmarva in 1958 was approximately 150,000 tons of soybean meal and 215,600 tons of corn. Rail tonnage, because of high freight rates, will show an appreciable loss in revenue for 1959, says the industry.

"Unanimously, we applaud the intent of the railroads to retire rate disparities by instituting a competitive system of rate applications, complementary to the preservation and growth of the feed industry and railroad system," Mr. Davis said.

Earl Hummer, a consultant in transportation from Washington, D.C., was employed as a part-time assistant to work with DPI's transportation committee.

TOP OF THE HOPPER

(Continued from page 1)

THE USDA IS RUNNING OUT of terminology, the National Soybean Processors Assn. notes. The agency now is referring to both 1955 and 1956 corn still under farm loans as "re-extended reseal."

DIFFICULTY FOR CATTLE feeders in some Corn Belt areas in getting bank financing this season is said to have resulted in quite a number of cases where ranchers with feeder cattle for sale are carrying farmers who do the feeding and finishing. Along with the factor of tighter money supplies and higher interest rates, bankers were reported to feel that the combination of high prices paid for feeder cattle and prospective lower prices for fed cattle would result in poor returns for many feeders and make loans less secure. However, there have been recent reductions in feeder cattle prices.

WITH TURKEYS, NOT TO MENTION cranberries, on everyone's mind these days, some of the folks in Arkansas are thinking especially hard about the birds. Roy C. Ritter, president of the Arkansas Turkey Federation, writes in the association's bulletin that "with the rolling hills and climate and the type and size of farms we now have in Arkansas, we can write our own ticket as to how big and how good we want to be in the turkey business. Geographically we are located right in relation to markets and in relation to feed supplies. We are close enough to the Grain Belt to the north, the supply of milo to the south and west, and Arkansas ranks third or fourth in soybean production. This, combined with people who are willing to work, enables us to go forward and be a major factor in turkey production."

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

Boston: Demand and supply steady; 400 D, 3,000 A 20¢ lb.; 300 D, 3,000 A 19½¢; 300 D, 2,250 A 18¢; 600 D, 1,500 A 17½¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 16½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

Minneapolis: Demand fair; supply ample; 10,000 A 34½¢ lb.; 300 D, 2,250 A 19¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

ALFALFA MEAL

Denver: Demand good; trend steady; supply short; dehydrated $52.

Cincinnati: Demand poor; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $70.50.

Chicago: Demand improved; trend higher; supply fair; carlots, 17% protein, dehydrated with 100,000 units vitamin A guaranteed $64.50@65.50.

Ft. Worth: Demand good; supply sufficient for nearby requirements; dehydrated 17%, 100,000 A $65.80 rail, immediate; $66.80 last half November; suncured 13% ¼-in. grind No. 1 $46@48, truck or rail.

Boston: Demand good; supply fair; dehydrated 17% $69; suncured 13% $49.

Omaha: Demand good; trend strong; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $52; sacked meal $57, Omaha basis.

Portland: Demand good; trend higher; supply limited; 15% suncured $45; dehydrated $66.40.

New Orleans: Demand fair; trend steady; supply adequate; vitamin A, 17% $68@69; pellets $65@66.

Philadelphia: Demand and supply fair; 17% dehydrated $68.

Memphis: Demand fair; trend steady to higher; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $63.

Los Angeles: Demand steady; trend unchanged; supply adequate; dehydrated meal, 17% protein, 100,000 A $52, bulk; dehydrated pellet meal, 17% protein, 100,000 A $54, bulk; suncured meal, 15% protein $46@47, bulk; suncured crumbles, 15% protein $48@49, bulk.

Buffalo: Demand and supply fair; trend steady to higher; $72.50, Boston.

St. Louis: Demand fair; trend firm; supply limited; suncured, 13% fine $46; dehydrated 17%, 100,000 A, demand slow, trend firm, supply ample $62.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

Kansas City: Demand fair with larger operators shipping steadily but mostly against bookings; trend steady to stronger, possible $2 price rise indicated for next week; supply tight; dehydrated alfalfa meal with 17% protein and 100,000 units vitamin A guaranteed on arrival: reground pellets $57, sacked; pellets $52, bulk; meal with 18% protein and 125,000 units A $61, sacked; meal with 20% protein and 150,000 units A $67, sacked; suncured meal demand is slow and prices unchanged from a week ago, No. 1 fine ground $43, No. 1 ¼-in. $37@38, No. 2 ¼-in. $35@36, sacked.

Minneapolis: Demand good; supply adequate; trend steady; 17% dehydrated, 100,000 units vitamin A, reground pellets $58, bulk, Minneapolis; oiled reground pellets $60, sacks $4 more.

ANIMAL FAT (STABILIZED)

Chicago: Demand and supply fair; trend steady; tank truck or car lots, bleachable fancy tallow $6.25 cwt.; yellow grease $6.12½ cwt.

Ogden: Supply normal; $5.50 cwt.

Boston: Demand steady; supply ample; tallow 6¾¢ lb.; yellow grease 5¼¢ lb.

New Orleans: Demand fair; trend easy; supply adequate; 6@6½¢ lb., tank cars.

Louisville: Demand slow; trend steady; supply good; bleachable white 5¾¢ lb.; white tallow 6¾¢ lb.; yellow grease 5¾¢ lb.

Ft. Worth: Demand good; supply scarce; prime tallow, tank cars, 6¢ lb.; drums 8½¢ lb., f.o.b. northern Texas packing plants with returnable drums.

St. Paul: Demand good; supply ample; trend steady; bleachable fancy tallow steady at 6¢ lb., f.o.b. producer's plant.

Kansas City: Demand slow from mixers; trend steady; supply ample; prime tallow 5¾¢ lb., tank car.

San Francisco: Demand fair; supply ample; bleachable fancy 6½¢ lb.; yellow grease 5½¢ lb.

BARLEY FEED

Denver: Demand and trend steady; supply adequate; rolled $1.90 cwt.

Boston: Demand fair; supply adequate; $46.50.

Milwaukee: Demand good; supply fair; needles 90¢@$1.02 cwt.; ground screenings $24.

Portland: Demand good; supply ample; trend unchanged; rolled $56; ground $54.

Chicago: Demand fair; trend steady; supply adequate; $35, carlots.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Baltimore: Demand fair; trend steady; supply ample; $45.50, carlots.

New Orleans: Demand slow; trend unchanged; supply ample; $50@51.

Ogden: Supply normal; rolled $48@53; whole barley $40@45.

Philadelphia: Demand slow; supply fair; $46.50.

Seattle: Demand and supply good; trend firm; $48, bulk, truck loads.

Los Angeles: Demand fair; trend firm; supply tight; standard rolled $3.20 cwt.; standard ground $3.20 cwt.

San Francisco: Demand fair; supply ample; rolled $59, ground $58.

BENTONITE (SODIUM)

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

Denver: Demand fair; trend good; supply ample; $21.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply ample; $80@85.

BLOOD MEAL

New Orleans: Demand dull; trend steady; supply ample; $80@85.

Omaha: Demand and trend strong; supply fair; $95, Omaha basis.

Chicago: Demand good; trend firm; supply fair; guaranteed 80% protein, 100-lb. bags $115, carlots.

Ogden: Supply normal; $87.50 ton in 100-lb. bags, f.o.b. Ogden.

Portland: Demand good; supply ample; trend unchanged; $115.

Louisville: Demand fair; trend firm; supply good; $80@85.

Los Angeles: Demand better; trend unchanged; supply adequate; $5.50 a unit of ammonia.

San Francisco: Demand fair; supply ample; $6 a unit of ammonia.

BONE MEAL (STEAMED)

Louisville: Demand slow; trend steady; supply normal; $80@85.

New Orleans: Demand fair; trend steady; supply ample; $80@85.

Portland: Demand good; supply ample; trend unchanged; $102.

Cincinnati: Demand fair; trend steady; supply ample; $100, Cincinnati.

Chicago: Demand and supply fair; trend steady; $97.50, carlots, 100-lb. bags.

Boston: Demand and supply steady; $100.

Ft. Worth: Demand fair; supply light; $90, f.o.b. Ft. Worth, local manufacture.

Denver: Demand good; trend firm; supply very tight; $109, Denver.

Seattle: Demand good; trend firm; supply limited; $90, delivered, truck lots.

Buffalo: Demand good; trend steady; supply limited; $105.

Los Angeles: Demand fair; trend steady; supply limited; imported $79, 20-ton lots.

San Francisco: Demand good; supply ample; $75.

BREWERS DRIED GRAINS

New Orleans: Demand fair; trend firm; supply good; $48@49.

Ft. Worth: Demand slow; supply sufficient; 26% protein $50@51, November.

Boston: Demand good; supply adequate; 26% $53.50@55.50.

Chicago: Demand better; trend sharply higher; supply fair; 26% protein $46.50, carlots.

Milwaukee: Demand good; supply fair; $47.

Cincinnati: Demand poor; trend steady; supply adequate; $51.

Louisville: Demand fair; trend steady; supply ample; $47.

Philadelphia: Demand and supply fair; $54.

St. Louis: Demand fair; trend steady; supply adequate; $44.

Los Angeles: Demand slow; trend unchanged; supply adequate; $49.50 bulk, $53.50 sacked.

Buffalo: Demand good; trend higher; supply poor; $53, bulk, Boston.

San Francisco: Demand fair; supply ample; $54.

BREWERS DRIED YEAST

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots; 9¾@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10@11¢ lb., carlots; 10½@12¼¢ lb., ton lots.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Omaha: 10½¢ lb.

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Louisville: Demand slow; trend steady; supply ample; 10@10½¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Los Angeles: Demand slow; trend unchanged; supply adequate; 10¢ lb. 5-ton lots; 11¢ lb. 1-ton lots; 12¢ lb. less than ton lots.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

Buffalo: Demand fair; trend steady; supply ample; $9.65 cwt.

San Francisco: Demand fair; supply good; 10¢ lb.

BUTTERMILK (CONDENSED)

Chicago: Demand and supply fair; trend steady; $3.25@3.50 cwt., carlots.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.25@4.30 cwt.

Boston: Demand active; supply tight; 3.95¢ lb.

Louisville: Demand and supply nil; trend steady; $4.25 cwt., nominal.

Ogden: Supply average; $4.40, 100-lb. drum.

Philadelphia: Demand and supply fair; $4.25 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100-lb. lots; 4½¢ lb., 500-lb. lots.

San Francisco: Demand fair; supply good; $5 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight)

New York: Crystals $16.28, flour $10.28.
Buffalo: Crystals $17.11, flour $11.11.
Toledo: Crystals $18.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, 20-ton cars; meal $11.15, 20-ton cars.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CHARCOAL

Boston: Demand and supply steady; $110.

Los Angeles: Demand fair; trend unchanged; supply adequate; hardwood poultry $156, less than ton lots; $144.40, ton lots.

San Francisco: Demand steady; supply ample; $141.

COCONUT OIL MEAL

Portland: Demand good; trend higher; supply limited; $78.

Seattle: Demand fair; trend firm; supply ample; $84, delivered, truck.

Los Angeles: Demand slow; trend steady; supply adequate; copra cake $70@71, bulk.

San Francisco: Demand good; supply tight; solvent $67.50, bulk.

COD LIVER OIL (FORTIFIED)

Boston: Demand improved; supply steady; 300 D, 3,000 A 20½¢ lb.; 600 D, 2,250 A 19¢; 300 D, 2,250 A 18½¢; 600 D, 1,500 A 18¢; 300 D, 1,500 A 17¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 500 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; trend easy; supply normal; 50% solid $50@55, f.o.b. Gulf.

Boston: Demand and supply good; 4¾¢ lb.

New York: Demand poor; trend lower; supply tight; 2⅝@2½¢ lb., f.o.b. eastern shore.

Denver: Demand poor; trend steady; supply ample; dried $167, Denver.

Los Angeles: Demand slow; trend unchanged; supply adequate; 3½¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $50.90, meal $64.90.
Atlanta: Feed $56.98, meal $70.98.
Birmingham: Feed $55.64, meal $69.54.
Boston: Feed $55.84, meal $69.84.
Chicago: Feed $44, meal $58.
Cleveland: Feed $52.14, meal $66.14.
Denver: Feed $54.51, meal $68.51.
Ft. Worth: Feed $52.96, meal $66.96.
Indianapolis: Feed $49.36, meal $63.36.
Kansas City: Feed $44, meal $58.
Louisville: Feed $51.21, meal $65.21.
New Orleans: Feed $54.20, meal $68.20.
New York: Feed $56.43, meal $69.43.
Norfolk: Feed $54.71, meal $68.71.
Philadelphia: Feed $55.02, meal $69.02.
Pittsburgh: Feed $52.96, meal $66.96.
St. Louis: Feed $44, meal $58.
Decatur, Ill.: Feed $37.75, meal $54.75.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; trend steady; $50.

COTTONSEED OIL MEAL

Wichita: Demand good; supply sufficient; 41% old process $75.50.

New Orleans: Demand good; supply adequate; trend steady; $74@74.50.

Omaha: Demand slow; trend strong; supply tight; 41% solvent $70.70, bulk, delivered Omaha.

Philadelphia: Demand slow; trend unsettled; supply light; $79.

Denver: Demand good; trend steady; supply fair; 2% fat $72.40.

Chicago: Demand good; trend higher; supply fair; Memphis basis, hydraulic $67, solvent $64.50, carlots.

Portland: Demand good; supply ample; trend unchanged; $72.

Boston: Demand fair; supply poor; $87.60.

Louisville: Demand slow; trend strong; supply ample; old process $72.50, new process $71.50.

Cincinnati: Demand poor; trend higher; supply adequate; $71.

Ft. Worth: Demand good; offerings light; 41% old process $70; solvent, 1% fat added $69.10@71, nominal; pellets $2 additional; cottonseed hulls $19@20, sacked.

Ogden: Supply average; 41% $85@90.

Memphis: Demand good; trend steady; supply fair; prime 41% protein, old process $68.50; new process, 41% solvent $64.50.

Seattle: Demand good; trend firm; supply limited; 41% expeller process $79, delivered truck lots.

St. Louis: Demand fair; trend firmer; supply limited; solvent $71.

Los Angeles: Demand good; trend very firm; supply smaller; $69@70, bulk.

Buffalo: Demand poor; trend steady; supply adequate; $86.50, Boston.

Kansas City: Demand slow; trend steady; supply adequate; old process $69, sacked, Memphis; solvent $67.

San Francisco: Demand good; supply tight; 41% $67, bulk; 44% $70, bulk.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

New York: Demand and supply good; trend firm; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12% $53, f.o.b. Tupelo in 100-lb. multiwall bags, $50 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Coronet, Fla.: Carload, bagged $66.25 and bulk $63.25; truck load, bagged $67 and bulk $64, f.o.b. Coronet, Fla.

Cincinnati: 18% phosphorus $84.02; 13% phosphorus $66.96, f.o.b. Cincinnati.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston; 100-lb. multiwall bags $71.35, bulk.

DICALCIUM PHOSPHATE

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices: for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Cincinnati: 18½% phosphorus $95.15, f.o.b. Cincinnati.

Portland: Demand good; supply ample; trend unchanged; $115.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18¼%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Carload and truckload, bagged $80.50, bulk $77.50, f.o.b. Texas City, Texas.

Denver: Demand fair; trend steady; supply ample; $97.60, delivered in Denver.

DISTILLERS DRIED GRAINS

Boston: Demand improved; supply fair; dark and medium dark $58.

Louisville: Demand good; trend steady; supply fair; bourbon: light $48, dark $50, solubles $77.

Cincinnati: Demand poor; trend steady; supply adequate; $46.50.

Philadelphia: Demand slow; trend unsettled; supply light; $58.

Seattle: Demand good; trend easy; supply limited; $66.50, delivered, truck lots.

Buffalo: Demand good; trend higher; supply poor; $56, bulk, Boston.

San Francisco: Demand fair; supply ample; solubles $85.

DRIED BEET PULP

New Orleans: Demand fair; trend steady; supply adequate; $50@51.
Ogden: Supply average; $45@50.
Milwaukee: Demand good; supply fair; plain $43.50, molasses $43.50.
Portland: Demand good; supply ample; trend unchanged; $56.40.
Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $51.70, November-December, delivered Ft. Worth.
Boston: Demand fair; supply adequate; Canadian $51.
Denver: Demand excellent; trend strong; supply firmer; $32, bulk, Denver.
Seattle: Demand good; trend steady; supply limited; $50, delivered, carlots.
Los Angeles: Demand steady; trend unchanged; supply ample; $47.40@48.50, bulk.
Buffalo: Demand and supply fair; trend steady; $51, Boston.
San Francisco: Demand good; supply fair; $42.80, bulk.

DRIED BUTTERMILK

New Orleans: Demand fair; trend steady; supply ample; $11.50@12 cwt.
Milwaukee: Demand good; supply fair; $14 cwt.
Ogden: Supply average; $8.50, 100-lb. bag.
Chicago: Demand and supply fair; trend higher; medium acid $11@11.50 cwt., sweet cream $11.50@12 cwt., carlots.
Louisville: Demand slow; trend stronger; supply light; $12@12.50 cwt.
Buffalo: Demand very good; trend firmer; supply very limited; $13.90 cwt.
Los Angeles: Demand slow; trend unchanged; supply adequate; 12¢ lb.
San Francisco: Demand fair; supply ample; 11½¢ lb.

DRIED CITRUS PULP

Boston: Demand very slow; supply adequate; $51.
New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida points.
Buffalo: Demand poor; trend steady; supply adequate; $32.50, f.o.b. Florida points.
Los Angeles: Demand good; trend unchanged; supply limited; orange pulp $41, bulk; lemon pulp, none available.
San Francisco: Demand and supply fair; meal $49.

DRIED SKIM MILK

Portland: Demand good; supply ample; trend unchanged; 13¢ lb.
New Orleans: Demand slow; trend unchanged; supply ample; $11.50@12 cwt.
Milwaukee: Demand good; supply fair; $14 cwt.
Boston: Demand active; supply tight; 13¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 11@11½¢ lb.
Chicago: Demand fair; trend steady; supply adequate; $12@12.50 cwt., carlots.
Louisville: Demand slow; trend stronger; supply light; $13@13.50 cwt.
Ogden: Supply average; $15.15, 100-lb. drum.
Philadelphia: Demand and supply fair; $12.50 cwt.
Minneapolis: Very scarce item; demand good; trend steady; $13.75.
Buffalo: Demand good; trend firmer; supply very limited; spray $14 cwt.
Los Angeles: Demand slow; trend unchanged; supply adequate; 14¢ lb., less than ton lots; 13¾¢ lb., ton lots.
San Francisco: Demand and supply fair; 13½¢ lb.

DRIED WHEY

New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt.
Ogden: Supply average; $6.90, 100-lb. bag.
Boston: Demand and supply heavy; 5½¢ lb., f.o.b. shipping points.
Louisville: Demand dull; trend steady; supply light; $6.50 cwt.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Portland: Demand good; supply ample; trend unchanged; $6.80 cwt.
Chicago: Demand good; trend upward; supply fair; $5.75@6 cwt., f.o.b. plant.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6 cwt., sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse, Ft. Worth.
Wichita: Demand light; supply ample; $6.50 cwt.
Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Philadelphia: Demand and supply fair; $6.50 cwt.
Minneapolis: Demand very good, but supply tight; trend steady to stronger; $5.50@5.55 cwt.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.
Los Angeles: Demand slow; trend steady; supply adequate; $5.93 cwt., carloads; $6.23 cwt., l.c.l.
San Francisco: Demand steady; supply good; $5.75 cwt.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply tight; $80, nominal.
Ft. Worth: Demand fair; supply sufficient; 85% to 87% protein $75@80, f.o.b. trucks, north Texas plants.
Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein.

FISH MEAL

Omaha: Demand good; trend firm; supply ample; 60% menhaden $140.
Louisville: Demand dull; trend steady; supply light; $140@150.
Cincinnati: Demand fair; trend steady; supply adequate; $160.
Ogden: Supply average; $2.20 a unit, f.o.b. Coast; 65% $166@168.
New Orleans: Demand fair; trend steady; supply good; menhaden, 60% $127.50@130; scrap $124@126, f.o.b. Gulf.
Boston: Demand and supply steady; $130, f.o.b. Gloucester.
Milwaukee: Demand good; supply fair; 60% $155, Milwaukee.
Portland: Demand good; supply ample; trend unchanged; $1.90 a unit.
Chicago: Demand improved; supply ample; trend steady on eastern menhaden but easier on Gulf; carlots, menhaden, eastern $119@125 and scrap $115@121; Gulf $122@128 and scrap $118@124; Canadian herring meal $1.80 a unit of protein.
Ft. Worth: Demand fair; supply limited on menhaden, sufficient on Peruvian; 60% menhaden $138; 65% Peruvian $135, delivered Ft. Worth.
Denver: Demand poor; trend steady; supply ample; $2.15 a unit of protein, f.o.b. West Coast.
Minneapolis: Gulf menhaden, supply ample, demand slow $140@142, delivered, Minneapolis; 60% blended, West Coast, delivered $138@150; 70% herring, demand slow, supply ample $1.75@1.80 a unit of protein, f.o.b. West Coast.
Buffalo: Demand just fair; trend steady; supply ample; 60% protein, menhaden $138 bulk, $143 sacked.
Seattle: Demand and supply good; trend easy; $1.95 a unit protein, ex-dock, Alaskan.
Los Angeles: Demand slow; trend firmer; supply adequate; local production $1.85 a unit.
San Francisco: Demand slow; supply ample; imported $1.77½ a unit of protein.

HAY

Louisville: Demand for hay slow, straw excellent; trend of hay and straw steady; No. 1 hay, any variety of local $30@32, No. 2 $28@30; straw $20.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24@25; No. 1 red clover $26@27; alfalfa, first cutting $32, second cutting $25; clover mixed $27.50; wheat or oat straw $18@20.
Ogden: Supply average; $1.35@1.35 a bale; $25 ton in the barn.
Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; No. 2 prairie $24@26; No. 2 Johnson grass $22@24, delivered Texas common points.
Denver: Demand fair; trend good; supply ample; alfalfa baled, new hay $30, third cutting.
Wichita: Demand good; supply sufficient; prairie $20; alfalfa $22.50@25.
Portland: Demand good; supply ample; trend unchanged; $34.
Boston: Demand and supply seasonally steady; No. 2 timothy $41@43.
Philadelphia: Demand slow; supply light; $24@25.
Los Angeles: Offerings light with slow demand; U.S. No. 1 $36@37; U.S. No. 2 leafy $33@34; U.S. No. 2 green $33@34; U.S. No. 2 $30@31.
Seattle: Demand good; trend steady; supply fair; alfalfa, U.S. No. 2 green $39, delivered, truck lots.

HOMINY FEED

Chicago: Demand fair; trend steady; supply adequate; $45, carlots.
Milwaukee: Demand good; supply tight; $44.50, Milwaukee.
Boston: Demand good; supply adequate; $50.50, bulk.
New Orleans: Demand slow; trend steady; supply ample; $44@45.
Louisville: Demand slow; trend firm; supply ample; $44.50.
Cincinnati: Demand poor; trend steady to higher; supply adequate; $46.50.
Memphis: Demand poor; trend steady; supply ample; white $44; yellow $44.
Kansas City: Demand slow, with little better demand from West; trend steady; supply adequate for demand; yellow $33.50, bulk.
St. Louis: Demand slow; trend steady; supply limited; yellow $44.50.
Buffalo: Demand good; trend steady to higher; supply adequate; $51, bulk, Boston.
Seattle: Demand fair; trend steady; supply limited; $54, delivered, carlots.

LINSEED OIL MEAL

Chicago: Demand improved; trend irregular; supply fair; carlots, Minneapolis basis, solvent $72.50@73; expeller $76@77.
Ft. Worth: Demand slow; supply moderate; 34% protein: solvent, rail $91@92.
Milwaukee: Demand good; supply fair; old process $87.50; new process $83.
Portland: Demand slow; supply limited; trend unchanged; $88.
New Orleans: Demand slow; supply ample; trend strong; $82.50@83.
Philadelphia: Demand and supply fair; trend unsettled; 34% $95.
Boston: Demand slow; supply ample; $90.
Omaha: Demand slow; trend strong; supply ample; 34% solvent $77.80, bulk; 32% old process $82.30, Omaha basis.
Minneapolis: Demand spotty and fair; supply scarce; new process $73@73.50, November-December; $75.50, January-March; old process $77@78.50.
Louisville: Demand slow; trend strong; supply normal; old process $95; new process $91.
Cincinnati: Demand poor; trend steady; supply adequate; new process $89; old process $95.
Wichita: Demand fair; supply sufficient; 34% $89.20.
Denver: Demand very poor; trend strong; supply tight, small crop; $91.94.
Kansas City: Demand slow; trend steady; supply tight with production very limited; solvent meal $72.50, bulk, Minneapolis; old process $76.50.
Seattle: Demand fair; trend steady; supply limited; 31% protein, California $90, delivered, car loads.
Los Angeles: Demand steady; trend firmer; supply limited; local production, 31% protein $72, bulk.
San Francisco: Demand fair; supply ample; $74.50, bulk.

LIVER & GLANDULAR MEAL

Omaha: Demand and trend firm; supply short; 65% $190, Omaha basis.

MALT SPROUTS

Chicago: Demand and supply fair; trend steady on sacked, higher on bulk; carlots, No. 1 uneven bags $35, bulk $29.
Boston: Demand very slow; supply adequate; $42.50.
Milwaukee: Demand good; supply fair; odd weights $35.50; even weights $38.50.
New Orleans: Demand fair; trend easy; supply ample; $40@42.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $43.

MEAT AND BONE MEAL

Boston: Demand improved; supply adequate; $1.15 a protein unit; converted 50% $70.
Ogden: Supply average; $80 in 100-lb. bags.
Omaha: Demand good; trend firm; supply ample; $75.
Portland: Demand good; supply ample; trend unchanged; $1.45 a unit of protein.
Chicago: Demand fair; trend steady; supply adequate; 50% protein, 100-lb. bags $80, carlots.
Cincinnati: Demand good; trend strong; supply fair; 50% meat and bone scraps $77.50, Cincinnati.
New Orleans: Demand slow; trend easy; supply ample; $80@85.
New York: Demand good; trend upward; supply fair; 50% $67.50, 55% $75, bulk; 50% $70.50, 55% $78, sacked.
Ft. Worth: Demand good; supply ample; bulk, meat and bone, 50% $70@73, f.o.b. or delivered Ft. Worth.
Louisville: Demand fair; trend steady; supply good; $80@85.
Denver: Demand good; trend firm; supply ample; 50% $70, bagged, truck lots; $67, bulk lots.
Wichita: Demand good; supply sufficient; 50% $80, f.o.b. plant; 55%, no quotations, no offerings.
St. Paul: Stronger demand and trend; supply ample; up $1@3 from last week to $76@78.
Buffalo: Demand just fair; trend steady; supply ample; 50% meat scraps $72.50 bulk, $77.50 sacked.
St. Louis: Demand fair; trend steady; supply good; $79.
Los Angeles: Demand good; trend steady; supply ample; 50% protein $1.60 a unit, bulk.
Seattle: Demand good; trend steady; supply ample; 50% protein $80, ex-warehouse.
Kansas City: Demand fair; trend steady to stronger; supply fairly tight; 50% meat and bone $77.50.
San Francisco: Demand fair; supply ample; $1.50 a unit of protein, bulk basis.

MILLFEED

Minneapolis: Demand off; red dog market inactive; supplies backing up; standard midds. down $1 from last week to $36.50; bran off 50¢ to $37; red dog steady at $46.
Kansas City: Demand draggy; trend steady to slightly weaker on middlings; supply adequate to ample; bran $37@37.75, shorts $39@39.75, sacked; bran $32@32.75, shorts $34.50@35.25, middlings $33.50@34.25, bulk.
Wichita: Demand improved, now very good; supply adequate; basis Kansas City; bran $37.75@38.25, shorts $39.75@40.25.
Ft. Worth: Demand fair; supply sufficient; carlots, burlaps, bran $47, gray shorts $49; bulk middlings $45, delivered Texas common points.
Chicago: Continued strong indications of substantial inquiry and fair export business and the switch in the weather helped bring about better demand for millfeeds and bran, either sacked or in bulk, during the past week. Some tapering off appeared for middlings toward mid-week. Quotations, per ton, carlots, Chicago basis: standard bran, sacked $44 and bulk $37.50; standard midds., sacked $42.50 and bulk $37.50; red dog, sacked $47.50 and bulk $43.50.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

Omaha: Demand good; trend easy; supply ample; sacked meal $38; sacked gray shorts $40; bulk standard midds. $35.50, all Omaha basis.

Cincinnati: Demand fair; trend lower; supply adequate; bran $44, middlings $47.

Memphis: Demand fair; trend steady; supply ample; wheat bran $45.80, sacked; gray shorts $47.80, sacked; standard midds. $41.70, bulk.

Louisville: Demand fair; trend stronger; supply ample; bran $49.10, mixed feed $50.10, shorts $51.10, middlings $49.30.

St. Louis: Sacked, bran $42.50@43, shorts $44.50@45; bulk, bran $39@39.50, shorts $38@38.50, middlings $37@37.50.

Boston: Demand active; supply spotty; bran $50.50@51.50; middlings $52.50@53.50.

Buffalo: Millfeeds rested on a plateau last week. The export base was the main prop, but there is nothing in the picture to indicate an upturn or let down. Sales were quiet until late on Nov. 10 when a brief buying flurry occurred. Mixers' business held unchanged but the country trade lagged and the sacked differential on bran and middlings narrowed to $4.50 from $5. Quotations Nov. 11: Bulk bran $37@37.50, sacked $41.50@42; bulk middlings $39@39.50, sacked $43.50@44; bulk red dog $45.50@46, sacked $50@51.

New York: Demand and supply good; trend upward; bran $50@50.50, standard midds. $52.50@53.

Philadelphia: Demand slow; supply fair; trend unsettled; bran $50, standard midds $52.50, red dog $58.

New Orleans: Demand good; trend easy; supply ample; sacked, bran $48.50@49.25, shorts $50.75@51.50; bulk, bran $44@44.75, shorts $46.50@47.25, middlings $46.25@47.

Denver: Demand good; trend steady; supply adequate; shorts $43.25, bran $41.25, mill run $42.25.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $46, middlings $51; to Denver: red bran and mill run $53, middlings $58; to California: red bran and mill run $53.50, middlings $58.50, f.o.b. San Francisco and Los Angeles.

Seattle: Demand fair; trend steady; supply limited; $45, delivered, common transit points, carlots.

Portland: Demand slow; trend lower; supply ample; $41.

Los Angeles: Standard mill run $43@49, bulk, demand slower, trend weaker, supplies more plentiful; red bran $52@53, bulk, slow demand, steady trend, adequate supplies.

San Francisco: Demand good; millfeed $48.50, bulk; red bran $52.50, bulk.

MINERAL FEED

Ft. Worth: Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus, 6% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50-lb. paper bags).

Denver: Demand fair; trend steady; supply ample; $100.

Portland: Demand good; supply ample; trend unchanged; $45.

Ogden: Supply normal; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bag.

Wichita: Demand heavy; supply adequate; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

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MOLASSES

Boston: Demand seasonally improved; supply stable; 16½¢ gal., tank cars.

Denver: Demand fair; trend steady; supply ample; 10½¢ gal., New Orleans; $17.95 ton, New Orleans; $20 ton, West Coast.

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Louisville: Demand fair; trend steady; supply normal; 10¼¢ gal.

Cincinnati: Demand fair; trend steady; supply adequate; 10¼¢ gal., New Orleans.

New Orleans: Demand good; trend steady; supply ample; 10¢ gal., tank cars and trucks; 600-lb. customers' drums $7.05.

Ft. Worth: Demand improving; supply sufficient; blackstrap 11¼¢ gal., f.o.b. Houston; delivered Ft. Worth truck $25.94, seller's market price on date of shipment.

Memphis: Demand slow; trend steady; supply ample; blackstrap 10¢ gal., tank car, f.o.b. New Orleans and $22.60 ton, delivered Memphis, truck.

Minneapolis: Demand a bit better than last week; supply adequate; trend steady; $31, tank truck, delivered.

St. Louis: Demand slow; trend steady; supply ample; 10¢ gal., New Orleans.

Los Angeles: Demand good; trend steady; supply ample; $20, bulk, f.o.b. tank cars; $20.25, bulk, f.o.b. tank trucks.

Buffalo: Demand and supply good; trend steady; 16½¢ gal., f.o.b. Albany.

Kansas City: Demand slow; trend steady; supply ample; 10¢ gal., tank car, New Orleans.

Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank car lots or truck lots.

San Francisco: Demand and supply good; $20, f.o.b. cars, Richmond, Cal.

NIACIN

New York: Trend steady; $6 kilo, 10-kilo lots; $6.20 kilo, 5- and 2½-kilo lots; $6.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Minneapolis: Feeding rolled oats $1 higher, $85; reground oat feed demand good, some booking forward, supplies ample, $19, stronger by $2, otherwise no changes; feeding oatmeal $69; pulverized $47; crimped $61.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $44.20; reground $24.70, November.

Louisville: Demand slow; trend slightly stronger; supply ample; reground $24.30, rolled oats $27.30, feeding oatmeal $79.80, pulverized $53.30, crimped $70.30.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $30; pulverized white oats $55.

Portland: Demand good; supply ample; trend unchanged; rolled $65; ground $62; cleaned $64.

Boston: Demand good; supply irregular; white pulverized $58.50@59; reground oat feed $27.50, nominal.

Chicago: Demand and supply fair; trend firm to slightly higher; carlots, reground oat feed $16.50@17; No. 1 fine ground feeding oatmeal $80; feeding rolled oats $80@82.75.

Philadelphia: Pulverized white demand slow, supply fair $54; domestic demand slow, supply fair $28.50; Canadian oat feed demand slow, supply light $30.50.

Memphis: Demand fair; trend steady to higher; supply ample; 3½% protein, reground oat feed $23.25.

Los Angeles: Demand slow; trend firmer; supply tight; local production, pulverized $66.

Seattle: Demand good; trend firm; supply fair; $54, bulk, delivered truck lots (38 lb. or better).

OYSTER SHELL

Portland: Demand good; supply ample; trend unchanged; western $34; eastern $39; granite grits $28; shell flour $24.

Louisville: Demand good; trend steady; supply normal; in 80-lb. paper $23.45; in 50-lb. paper $23.70; in 25-lb. paper $25.95.

Boston: Demand and supply steady; in paper $26.05.

New Orleans: Demand and supply good; trend steady; $24@25.50.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45.

Seattle: Demand and trend steady; supply good; eastern $36, delivered, carlots.

Los Angeles: Demand slow; trend unchanged; supply ample; $14.80.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

PEANUT OIL MEAL

Milwaukee: Demand good; supply fair; 26% $47.

PEAT MOSS

Portland: Demand good; supply ample; trend unchanged; $3.30 a bale.

Boston: Demand and supply steady; $3.15 a bale in carlots.

Chicago: Demand fair; trend steady; supply ample; standard 7½ cu. ft. bales $3.80.

Philadelphia: Demand slow; supply fair; $2.85 a bale, f.o.b. pier.

Seattle: Demand and supply good; trend firm; $2.80 a bale, delivered, truck lots.

Los Angeles: Demand fair; trend unchanged; supply adequate; Canadian 5.6 cu. ft. bales $3.65.

San Francisco: Demand and supply fair; $3.65 a bale.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Boston: Demand and supply fair; $31.

Ft. Worth: Demand good; supply scarce; 55% protein $80@82.50, f.o.b. north Texas plants.

Los Angeles: Demand good; trend firm; supply adequate; $1.40 a unit of protein.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots, in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand slow; offerings light; carlots, rice bran $34@36, f.o.b. south Texas rice mills; hulls $3.50, f.o.b. mills.

Los Angeles: Demand and trend steady; supply limited; California production, high fat content, bran $53.

San Francisco: Demand good; supply ample; bran $45; polished $49.

SCREENINGS

Chicago: Demand better for domestic; trend steady to higher; supply ample; carlots, ground grain screenings $31.50; Canadian $29.40.

Minneapolis: Very little action in this commodity; limited offerings; demand only fair; no price change from last week; Canadian $24, lights $9@19, mediums $20@29, heavies $30@40, flax screenings, basis 15% $43.

Cincinnati: Demand fair; trend steady; supply adequate; oat screenings $19.

Ft. Worth: Demand good; supply limited; ground mixed grain $34.50@36.

Buffalo: Demand fair; trend steady to higher; supply poor; ground, sacked $33.50, New York, lake and rail; unground, bulk $32.75, New York.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ogden: Supply normal; milo $42@43.

Ft. Worth: Demand good; supply sufficient; carlots, bulk, No. 2 yellow milo $1.98@2, delivered Texas common points.

Los Angeles: Demand steady; trend easier; supply ample; milo $2.10 cwt., bulk.

Seattle: Demand and supply good; trend steady; milo $46, bulk, carloads.

SOYBEAN OIL MEAL

Milwaukee: Demand good; supply fair; $59.50, bulk, Decatur.

Louisville: Demand fair; trend strong; supply normal; $69.20.

Cincinnati: Demand fair; trend higher; supply adequate; $60, bulk, Decatur.

Ft. Worth: Demand good; supply adequate; carlots: 44% $73@74 November, $72.50@73.50 December; 50% protein $81.50@82.50 November, $81@82 December, depending on origin; trucks: 44% $74.50@75.50.

Minneapolis: Very little action in market; demand slow; supply adequate; 44% off $1 from last week at $52.

Chicago: Carlots, ton, Decatur basis—44% protein, unrestricted billing $59 and eastern restricted $56; 50% protein, unrestricted billing $64 and eastern restricted $60.50.

Portland: Demand slow; trend lower; supply ample; $51, f.o.b. Decatur.

Boston: Demand good; supply lighter; 44% $57, 50% $61.50, both bulk, f.o.b. Decatur.

New Orleans: Demand slow; supply ample; trend steady; $68@68.50.

Ogden: Supply average; $84@89.

Denver: Demand fair; trend steady; supply ample; $77.64, Denver.

Philadelphia: Demand and supply fair; trend unsettled; 44% $57, bulk, Decatur.

Wichita: Demand good; supply ample; 44% $70, 50% $77, f.o.b. Wichita.

Memphis: Demand good; prime 44% solvent $67.50, f.o.b. Memphis.

St. Louis: Demand fair; trend easier; supply ample; 44% $67.

Los Angeles: Demand steady for nearby; trend firmer; supply ample; $80.90, bulk.

Kansas City: Demand slow; trend weak to steady; supply adequate; for Kansas City shipment $56.50, bulk, Decatur; unrestricted $59@60.

Seattle: Demand fair; trend firm; supply ample; $86, delivered, carlots.

San Francisco: Demand good; supply ample; $81.40, bulk.

Omaha: Demand slow; trend strong; supply ample; 44% $53.60, bulk, delivered Omaha.

TANKAGE

Wichita: Demand good; supply sufficient; 60% $80, f.o.b. plant.

Ft. Worth: Demand fair; supply sufficient; 60% digester $75@77, Ft. Worth.

St. Louis: Demand fair; trend steady; supply good; $80.

Kansas City: Demand slow; trend steady; supply adequate; 60% digester $72.50.

St. Paul: Demand slipping; heavy hog kill keeping supply ample; down $1@5 from last week to $70@74.

Chicago: Demand fair; trend firm; supply ample; 60% protein, 100-lb. bags $80, carlots.

Omaha: Demand good, trend firm; supply ample; $75.

New Orleans: Demand fair; trend easy; supply light; $85.50@86.

Louisville: Demand fair; trend firm; supply good; $80@85.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; offerings limited for nearby shipment; 5¢ lb., nominal, f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb.; 25-lb. drums $1.55 lb.; f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb.; 25-lb. drums $1.55 lb.; f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand fair; trend easy; supply ample; $58@61.

Buffalo: Demand fair; trend steady to higher; supply poor; commercial grade $60, f.o.b. Buffalo.

Minneapolis: Demand fair; supply ample; trend steady; $52, Minneapolis.

CORN PRODUCTS MOVES

NEW YORK—Corn Products Sales Co. has announced that its temporary home office is now located at 1 E. 43rd St., New York 17, N.Y.

A. E. Staley Allowed Feed Product Patent

DECATUR, ILL.—A. E. Staley Manufacturing Co. has been notified that its patent application on the mixture and mixing process for a new animal feed product that includes soybean hulls and molasses has been allowed.

E. C. Lane, manager of Staley's meal sales department, said recently that issuance of a patent is expected to be soon. He said the product currently most widely sold under the patent is packaged under the trade name "Sweetone." Marketing and promotion of this product have been under-way in several midwestern areas for some time.

The patent, which covers the mixing of soybean hulls with any hydrophyllic and hygroscopic ingredient, will be issued to Staley, according to Mr. Lane. Dr. Willard Turner and Kenneth Wright are the inventors.

CONFERENCE

(Continued from page 16)

problem is obtained by means of an electronic computer. For the less complex problems, methods are available for solution with the use of desk calculators.

Among the problems faced by feed manufacturers that can be incorporated into the linear programming solution is the variation in "bulkiness" in dairy feeds due to differing average weights of a bushel of feed.

Dr. King said this problem is especially troublesome when feeds are bagged, since a balance must be maintained between the bagging devices and the weighing hoppers that are designed for a particular volume determined by the mix line. "Although variations in ingredients may tend to be offsetting, the linear programming model must allow for this bulk factor," he explained.

Another problem concerns the availability of a given feed ingredient. Dr. King pointed out that although the solution might indicate the advantages of including the ingredient, supplies do not warrant a change. Thus, he said, it may be necessary to incorporate a restriction as to the total supplies available of a given feedstuff.

Concerning complex problems in multiple feed mixing operations, Dr. King confined his remarks to the problem of the possible effect on cost of the weight restriction.

He reported that investigations indicated the cost savings possible in dairy feeds if the mixer were allowed to provide the specified nutrient content of a ration at minimum cost regardless of the weight.

Dr. King said a researcher has illustrated this case with a 35% protein feed, indicating the usual ton of feed with weight restriction would cost $99.63. But if the weight restriction were lifted, the same nutritive requirements supposedly could be met at a cost of $96.85 with 1,556 lb. of feed. "On the economics side," Dr. King said, "our transportation facilities would be carrying 444 lb. of feed unnecessarily, and waste occurs both for the feed manufacturer and the feeder. Perhaps the nutrient specifications were not correct to allow the reported results. It does warrant additional investigation, however."

PRACTICAL APPLICATION OF ELECTRONIC FORMULATION—"There is no mill in formula feed manufacture, mixing feeds for sale, that will be able to afford not to have its formulas machine-calculated. With savings of approximately $1 per ton, the processing charges are of minor consideration."

These statements were made by Hobart R. Halloran, Electronic Formulation Service and Halloran Research Farm, Modesto, Cal., in referring to the question of what size mill

can afford electronic formulation service. Mr. Halloran covered various aspects of the subject.

"The original setting up of the formula will average somewhat under $100 per formula, depending on its complexity," he explained. "On the basis of a feed which sells at the rate of 300 tons per month, the original cost of machine calculation per ton for one month will amount to 33¢. Subsequent reformulations with new ingredient prices will run from $10 to $50, averaging around $30. Therefore, out-of-pocket expense would amount to 10¢ ton for monthly evaluation on a feed with a volume of 300 tons per month. These cost estimates are the estimated charges by the data processing organization and do not include supplementary nutritional help. Each nutritionist works directly with the computing group."

Following is Mr. Halloran's summary of answers to feed manufacturers' questions on least-cost formulation using a computer:

1. The savings involved in computer formulation depend on current ingredient prices and the time and skill going into the hand-calculated formulas. Initial savings will vary greatly but will usually average better than $1 ton.

2. The large volume formulas of a mill, usually 3-5, should be used first for computer formulation. The information from these formulas can be applied to the others. The lower volume formulas can be put through the computer as the volume increases or the competitive situation dictates.

3. Reformulation can be done periodically, such as weekly or monthly, or on the basis of evaluation of price changes by the management group.

4. Inventory and bulk tank space problems can be handled through ingredient restrictions on each formula.

5. The cumputer formulation is a tremendous help in procurement. Answers can be obtained quickly, within a day's time when necessary.

6. Texture and palatability of machine formulas will vary greatly. These can be controlled with ingredient restrictions and can be reduced in importance through the manufacture of pellets and crumbles.

7. Computer formulation can be used for all types of poultry and livestock formulas.

8. The size of the mill does not make a great deal of difference as the cost of the electronic formulation per ton is quite small.

UTILIZATION OF ENERGY SUPPLEMENTS BY POULTRY—As part of a discussion on use of different grains in poultry feeds, Dr. G. H. Arscott of Oregon State College pointed out that studies directed toward increased utilization of barley involving both broilers and layers have been under way at the Oregon station for several years, "and the problem is as yet by no means solved."

Dr. Arscott mentioned the work showing that utilization could be improved by soaking or use of amylolytic enzymes and that the sticky dropping condition was improved. It soon became evident, however, enzymes, while greatly improving utilization, did not make barley comparable to corn in feeding value. The soaking process appeared much more effective but economically unfeasible. Studies have since been directed towards further improvement in utilization and understanding of this phenomenon. Dr. Arscott mentioned a broiler study in which a combination of pelleting, fat and an enzyme was required for results comparable to an all-corn mash. Water consumption remained elevated for all groups receiving barley.

He went on to tell of a study to show whether the response from barley soaking or enzyme use might be due to an inhibitory quality in barley in contrast to an enzyme insufficiency either in barley or the digestive system. The results, he said, suggest that soaking overcomes an inhibitory action that may also be counteracted to a considerable extent by a suitable enzyme preparation.

"That more than one enzyme is effective in improving utilization has been reported by Washington investigators in results involving a crystalline proteolytic enzyme," Dr. Arscott said. "It has also been shown by these workers that the presence of certain microorganisms may be responsible for at least a major portion of the response due to soaking. Since autoclaving has been shown to destroy this effect, it is presently difficult to resolve this in relation to results cited here."

Dr. Arscott also told of use of fat, pelleting and enzyme treatments in studies on possibilities in improving efficiency of utilization of barley in layer feeds. It was noted that an amylolytic enzyme preparation was without effect in decreasing feed or water consumption. It also was mentioned that in all treatments where barley was a variable, litter condition was a problem.

LANDMARKS IN POULTRY NUTRITION—Dr. L. C. Norris, well known poultry scientist who retired recently from Cornell University and now is at the University of California, traced major developments in poultry nutrition—starting in 1897 with the work of a Dutch physician in Indonesia who Dr. Norris said first used scientific methods in nutrition research with chickens.

In covering more recent developments, he pointed to the USDA, Illinois and Cornell work on special growth promoting properties of fats and oils. In this connection, he cited recent Cornell work in which soybean oil was observed to increase significantly the growth of chicks fed practical broiler rations. But cooked ground soybeans in amounts which supplied an equal amount of soybean oil failed to increase the rate of growth, but did improve feed efficiency.

Following completion of this work, Dr. Norris said, Carew and Hill of Cornell compared the relative growth properties of cooked ground soybeans with cooked crushed soybeans and found that results comparable to soybean oil were obtained only with the cooked crushed soybeans. A possible explanation of this difference in results, he said, is that the heating of the beans preceding and during crushing causes sufficient expansion of the cellular fluids to cause disruption of the cells, thus releasing all the fat and rendering it susceptible to digestion. On the other hand, grinding the beans may leave many of the cells intact with resultant poor fat digestibility.

"Although the cause of the growth stimulating properties of fats and oils is not yet known," Dr. Norris said, "it is quite possible that by resorting to the use of cooked crushed soybeans in broiler rations, an economic source of vegetable fat may be made available. If this proves to be true, then another important step forward has been made in the development of high energy broiler rations."

MUSCULAR DYSTROPHY AND VITAMIN E IN RELATION TO POULTRY—"Although not denying that there may be a very definite connection between muscular dystrophy produced as a result of a dietary vitamin E deficiency and hereditary muscular dystrophy, it is important to differentiate the conditions under which these two forms of muscular dystrophy are induced—a dietary deficiency on the one hand and an inherited defect on the other," said J. Patrick Jordan, poultry department research assistant at the University of California.

After discussing inherited muscular dystrophy, Mr. Jordan went on to comment on nutritional muscular dystrophy. "Since diets considered deficient in vitamin E have been reported to cause a muscular dystrophy," he said, "one wonders if there is a relationship between hereditary muscular dystrophy and that said to be caused by a vitamin E deficiency. If one reviews the list of symptoms of vitamin E deficiency in various species, he cannot help but notice that only one symptom is common to all—involvement of the musculature. . . . However, it may be somewhat difficult to correlate nutritional muscular dystrophy with the fact that genetically dystrophic breast muscle initially demonstrates a positive increase in size followed by a replacement of muscle fibers with fat.

"On the other hand, it is difficult to state that nutritional muscular dystrophy is clearly caused by a vitamin E deficiency. It has been demonstrated that vitamin E deficiency can produce a nutritional muscular dystrophy which can be corrected by treatment with the vitamin. However, similar evidence has been presented for selenium. Certain vitamin E deficiency symptoms can be corrected with a multitude of other substances. . . . Conversely, certain of the vitamin E deficiency symptoms cannot be corrected by some of these agents.

"The classical roles of this vitamin include its activity (1) as an antioxidant; for example, to protect vitamin A, but we know of a multitude of other antioxidants that will suffice, and (2) as a critical part in the electron transport system, but the addition of other fat-soluble compounds, such as quinones, can satisfy this requirement."

Mr. Jordan asked what is the "true role of vitamin E?" He raised various questions in this regard and said that it is hoped that current experiments will "clear part of the confused picture."

NET ENERGY OF MOLASSES FOR DAIRY AND BEEF CATTLE—There has been lack of agreement on the value of molasses when fed at various levels, it was pointed out by Dr. G. P. Lofgreen of the University of California.

It cannot be logically disputed that net energy (NE) is theoretically to be preferred as a measure of useful energy over such measures as total digestible nutrients (TDN), digestible energy (DE) and metabolizable energy (ME). There have been few, if any, studies reported which were conducted with the objective of determining NE of molasses for either lactation or fattening. NE, Dr. Lofgreen noted, is classically determined by use of the respiration calorimeter, a procedure which is expensive and tedious. NE can, however, be determined from properly designed feeding trials if one can accurately measure the energy appearing in the milk or in the body weight gain.

Dr. Lofgreen went on to tell of recent studies at the Hawaiian Experiment Station in which the NE of blackstrap molasses for lactation and fattening was determined.

In the lactation work, it was noted that 10% molasses had no significant effect upon milk quality or energy yield. Molasses at 30%, however, resulted in a significant reduction in butterfat, solids-not-fat, flavor score and energy yield.

Current feeding practice is to limit molasses in dairy rations to some 10% of the concentrate. The data indicate that 10% of the entire ration or up to about 3 lb. per day may be fed with excellent results. The data also illustrate that TDN or DE are not good measures of the real value of molasses as fed under conditions of the test.

In the tests with beef steers, 10% molasses resulted in an increase in fat content of the body and a decrease in protein content. This resulted in a larger number of choice carcasses. This can be partially explained by a significant increase in feed consumption. Increasing the molasses to 25 and 40% adversely affected feed consumption, daily gains and carcass grade. It also was noted in this work that feed efficiency can be misleading when expressed in terms of feed required per unit of weight gain.

Dr. Lofgreen cited data for the various levels of molasses indicating that no average value for molasses can be given since its value is dependent upon amount fed. He also presented data again pointing out that TDN and DE are not satisfactory as measures of the energy value of molasses when fed at various levels.

SUPPLEMENTAL PHOSPHORUS SOURCES IN FEEDING BEEF CATTLE—John W. Algeo, Sinton & Brown, Santa Maria, Cal., presented an evaluation of a number of phosphorus carriers relative to potency, availability and use in feeds.

He said mineral supplements "should be used properly to balance the mineral requirement of a given ration for a given class of livestock."

And further commented, "I have seen many rations which are more than adequate in calcium but are low in phosphorus. yet in which both limestone and phosphorus supplement such as bone meal or dicalcium phosphate are being used.

"Remember," he said, "most of the phosphorus carriers are also calcium carriers."

Following are some of the observations Mr. Algeo made about the phosphorus carriers he discussed:

Dicalcium phosphate: "This product contains about 18% phosphorus and 24% calcium and is low in fluorine, approximately .12%. The biological availability of the phosphorus from dicalcium phosphate is excellent; in fact, it is probably the most available phosphorus found in the commonly used sources.

"Dicalcium phosphate is a rather good product for supplementing rations which contain nearly adequate calcium levels and require only a small amount of calcium supplementation in addition to phosphorus."

Defluorinated rock phosphate: ". . . This material varies from 13% phosphorus to 18% phosphorus and most generally occurs as tricalcium phosphate and contains approximately 34% calcium. Thus, it is better suited to rations in which some calcium as well as phosphorus supplementation is required.

"With regard to availability of the phosphorus, it is generally considered to be equal to dicalcium phosphate. . . ."

Steamed bone meal: "This is another good source of phosphorus for livestock feeding. The primary source of phosphorus in bone meal as in rock phosphate is tricalcium phosphate and in bone meal the phosphorus level runs about 14.5% with the calcium level being about 30%. In this respect it is more like rock phosphate and is most suitable as a supplement for rations requiring calcium as well as phosphorus supplementation.

"That steamed bone meal is subject to considerable fluctuation in its content of phosphorus was shown by Blosser et al. in 1954. . . ."

"Regarding availability, steamed bone meal is generally considered equal to defluorinated phosphate. However, some doubt has been cast by Anderson et al (1956) when they reported that for the cellulolytic activity of rumen micoorganisms bone meal was only 28% available compared with 93% availability for dicalcium phosphate."

Spent bone black: "This is also known as bone char and has very nearly the same value as steamed bone meal as a phosphorus source . . ."

Soft phosphate with colloidal clay: "This material is also known in the feed trade as 'soft phosphate,' 'colloidal phosphate' and 'colloidal clay' and is considered by many nutritionists as being one of the lower quality phosphorus supplements. This material has only 9% phosphorus and about 18% calcium . . ."

"The availability for rumen micro-

organisms was shown by Iowa workers to be about 2% as compared with 28% for bone meal and 93% for dicalcium phosphate . . ."

Curacao Island phosphate: "This supplement contains about 15% phosphorus and 35% calcium and is an undefluorinated rock phosphate . . . Curacao is an adequate source of phosphorus for maintenance level gains, but further work is necessary to elucidate its value in high efficiency rations . . . I would certainly endorse Dr. Crampton's recommendation against the general use of raw rock phosphates, including Curacao."

Phosphoric acid: "Data available in the literature, Richardson (1955), Menzies (1955) and Tillman (1958), indicates that phosphoric acid is an excellent source of phosphorus for beef cattle. These workers found that the phosphorus from phosphoric acid is equal to dicalcium phosphate or bone meal as a phosphorus source for ruminants . . . While some special equipment and care are required to handle the acid, it does seem to have a future as an excellent supplemental phosphorus source for rations which are already high in calcium."

SWINE FEEDING IN CALIFORNIA—The fact that in the past 20 years pork consumption in California has increased about 50% due to population growth while the state's hog output has decreased by 50% was brought out by Dr. Hubert Heitman, Jr., professor of animal husbandry, University of California.

California's agriculturists are concerned about this situation, and Dr. Heitman expressed his belief that "a balanced livestock economy with an effort toward more self sufficiency would indicate that more hogs could be raised within the state" and that this can be realized through "developing and using progressive production methods."

He pointed out that the Corn Belt is a concentrate surplus area compared to the feed-deficient status of California. "This explains in part the enigma of the California hog industry," he commented.

Dr. Heitman referred to a cost survey recently completed by the University of California Agricultural Extension Service. The survey involved 8-10 established producers in five Sacramento Valley counties. He explained that figures were adjusted to a 25-sow market-hog enterprise, and, using grain at a price of $50 ton, the following costs were estimated per hundredweight of pork marketed:

Feed	$13.31
Veterinary care and medicine	.86
Miscellaneous—replacement boar, telephone, taxes, insurance, etc.	1.22
Depreciation	.45
Interest on investment (6%)	.52
Labor	2.43
	$18.79

He said feed costs in this analysis represent 71-81% of the total cost—"which agrees with midwestern figures." However, Dr. Heitman noted that total production costs appear "staggering."

Dr. Heitman mentioned data which show that in the past 12 months California has seen a 15% decline in garbage-fed hogs and a 3% increase in grain-fed swine. "Nearly half of our hogs are still in garbage-feeding establishments," he said. "However, the 3% increase in grain-fed pigs possibly offers hope for building our swine numbers up in California to a reasonable level."

Much of the improvement in California hog production is expected to continue in the field of management—housing in particular. The University of California at Davis, in cooperation with the U.S. Department of Agriculture, has been working in the general field of climatic environment.

In Dr. Heitman's opinion, the future of pig parlors and confinement swine raising appears assured "and the possibilities of land and labor savings are only being touched upon at present." These confinement systems, he said, "seem to offer some hope to California producers." Several establishments using these systems are in varying stages of construction in the state.

"In the field of nutrition we have much to learn," Dr. Heitman commented. "But, also, we must use the knowledge we already have.

"When the price of stabilized tallow is competitive, it is an excellent feed. Trials at Davis indicate that 5-10% of stabilized tallow will increase growth rate 10-20%. This work indicated that 100 lb. of tallow replaced 312 lb. of barley less 44 lb. of supplement."

Many producers have felt that high levels of home-grown roughage, especially alfalfa, would lower the cost of production. And it was this thinking that led to tests in which it was found that 1 lb. of alfalfa meal replaced .28 lb. of concentrate feed. He said university researchers are now studying the effect of pelleting combined with 5, 20 and 40% alfalfa meal rations and they expect similar results.

NUTRITION-VETERINARY COOPERATION PAYS OFF—Differences and misunderstandings among veterinarians, feedmen and farmers can be and are being reduced through direct contacts, one with another, according to Dr. W. E. Poley, director of nutrition and secretary-treasurer, Zip Feed Mills, Sioux Falls, S.D. "Such contacts in our experience promote cooperation among all concerned and usually lead to a quick solution of the problem with reduced farm losses and more profitable production," he said.

Describing a Zip Feed Mills policy involving nutrition-veterinary relationship, Dr. Poley said that when one of the company's customers has sick animals a dealer or serviceman suggests to the feeder that he call in his veterinarian for diagnosis. "We offer to pay for the cost of this diagnosis, but not for the medication that might be involved," he said.

"We request that our dealer or serviceman be present when the veterinarian makes his call. We expect the veterinarian to make whatever diagnosis he feels is correct even though he may incriminate the feed. The veterinarian, therefore, is under no obligation to the feed dealer or manufacturer."

Dr. Poley continued his policy explanation: "We have found that the combined visit of the feedman and the veterinarian not only helps the feedman but also the veterinarian."

Dr. Poley told of several experiences which Zip Feed Mills has had with its veterinary-nutrition cooperative program to demonstrate that the program "brings together the combined thinking of the feedman, veterinarian, laboratory technician and producer."

He said that through this cooperation the company has accomplished:

"1. The prompt solution of many animal health problems.

"2. The building of the good will of the veterinarian toward the feedman and producer.

"3. An increase in the knowledge of the feedman and veterinarian through experience with mutual problems.

"4. The continuing business relationships with the producer which keep our customers happy."

Dr. Poley concluded his talk by saying that this cooperation fostered by the feed firm "pays off in the retention of old customers and in the finding of new ones."

DISEASE CONTROL BY MANAGEMENT—Dr. D. E. Jasper, dean, school of veterinary medicine and assistant director, University of California Agricultural Experiment Station, also had some things to say about the friction that has existed between feedmen and veterinarians.

"Let us admit that feed dealers and veterinarians have for too long gandy danced around each other," he said. "We have failed to communicate. We have insisted upon our 'rights.' We have given freely of advice in areas in which we were poorly prepared, afraid that the slightest admission that we didn't know everything would disgrace us in the eyes of our clients, or lose business to another.

"We have convinced ourselves that we don't like each other, that there is no common ground for cooperative endeavor."

Leading into his discussion of disease control through maangement, he said, "The area of our competitive interest in the client is small compared to overwhelming mutual interest in seeing him prosper . . .

"We must quit the cold war and substitute a policy of active cooperation toward the common goal. Even 'peaceful coexistence' falls short of solving the problem."

Dr. Jasper reported that a mastitis control program inaugurated on a county-wide basis in Shasta County resulted in almost $45,000 of increased production from nearly 1,500 cows during the first year plus a greatly reduced bill for antibiotics and treatment.

The program—carried out through the cooperation of a creamery, a veterinarian, the Agricultural Extension Service and the School of Veterinary Medicine—helped one dairyman save three hours of milking time per day. Another dairyman gained $8,500 over the previous year's return.

Results of equal success were obtained through a dairy health assistance program in Solano County.

"Mastitis is one of the best examples of disease control through management we can use," Dr. Jasper said. "It can be controlled in no other way, and the milking equipment and the manner in which it is operated is by far the most important single factor in mastitis control. Mastitis is a result of faulty management and can be corrected only by improved management. The notorious failure of antibiotics to improve the mastitis situation is one of the worst examples of misdirected control efforts in this enlightened age of animal medicine."

Dr. Jasper noted that mastitis cost California dairymen an estimated $35 million last year, and, in his opinion, most of this loss could have been prevented by better management.

Turning to an example of disease control in beef cattle management practices, Dr. Jasper related that in one case a herd was reduced from 1,000 to 650 cows within two years by culling non-productive animals, and, at the same time, the yearly calf crop was increased by 100 calves.

"I am convinced that swine and other livestock can be produced without devastating disease," he said. "This will be brought about by management practices which are geared to disease control . . . It is time for cooperative efforts to help our livestock industry. The veterinarian does not wish to sell feed and I don't think you fellows really want to have the responsibility of diagnosis and therapy in a disease situation. The next step is to get better acquainted."

RANDOM SAMPLE TEST INDICATIONS—Floor birds have produced more eggs than cage birds on a non-culled basis during the past three years in California random sample tests. This was reported by Emery A. Johnson, superintendent, California Poultry Improvement Commission.

"An analysis of variance indicates that although the difference between cage and floor production is significant and that some differences between entries within cage or within floor treatment are significant also, there is no entry-housing interaction," Mr. Johnson said. "It is concluded, therefore, that if a strain does well in one type of housing it tends to do well under other housing conditions."

Tests have shown that cage birds produce eggs with more blood spots than do floor birds. Mr. Johnson explained that on a broken-out basis involving 16 days of total production, four days during each quarter for three years, 9.3% of all eggs laid by hens on wire contained pinpoint blood spots or larger, compared with 6.6% for floor birds.

"No real differences have been observed between cage and floor birds with respect to Haugh units and chalaza score," he said, "but there appears to be some increase in egg weight and shell thickness of cage eggs over floor eggs."

Production has been significantly higher in the tests for hens on a 900 calorie ration than for hens on an 800 calorie feed, according to Mr. Johnson, but during the latest test even the higher energy ration did not result in a rate of lay among the cage birds equal to the production of the hens on the floor receiving the medium caloric feed. Aside from rate of lay, he said, no other variations were observed.

Mr. Johnson further reported that an analysis of variance implies that some strains of laying hens do not perform better than others on a high energy feed as compared with replicate groups on a medium energy feed.

SCIENCE AND AGRICULTURE—Efficiency in feed conversion to saleable beef, eggs and milk was cited by Roy Hansberry, agricultural research division, Shell Development Co., Modesto, as "the greatest technical challenge" the feed industry faces.

His talk included comments on the inefficiencies of feeding calories to animals instead of eating them ourselves. ". . . We are inevitably faced with the fact that feeding the produce of our cultivated acres to animals is inefficient and wasteful," he said. "Only in the U.S., Canada, Australia and the Argentine can we afford to indulge fully our taste for animal protein. Countries with high standards of living, but limited acres, like Denmark and the Netherlands can still indulge in poultry and dairy products, but the meat diet is limited."

He said our greatest source of food loss is due to the fact that we feed approximately half of it to animals, some of which, like cats, race horses and mink, do not contribute to our food supply.

"The animal also eats only a part of the plant," Mr. Hansberry said. "What he does eat is turned, in part, into human food such as meat, milk and eggs, but with an efficiency of only 10%. When we feed an animal 100 calories worth of potential food for human beings, he uses 90 calories walking around and keeping warm, reproducing himself and in inefficient digestion."

One of the ways Mr. Hansberry suggested for improving the efficiency of feeding the human race is to replace crops which are less efficient in food production by crops which are more efficient. "On the basis of calories per acre," he said, "probably the most efficient plant is sugar cane which can, by virtue of being grown in the tropics, grow throughout the year as opposed to more temperate crops which have only a 4-5 month growing season."

He pointed out that only a small part of the average plant is eaten by the human being and suggested that the previously inedible residues could be converted to food.

Better methods of growing and harvesting edible animals from the sea or even sea plants can increase the world's food supply, he said.

Mr. Hansberry said, also, that chemical synthesis starting from non-agricultural carbon sources can produce food in quantity.

Other practices which Mr. Hansberry believes would help relieve world hunger are irrigation, forest land clearance, swamp drainage and greater use of fertilizer.

MARKETS

(Continued from page 2)

South Central

There is no change in the demand for formula feed this week. For a time it was thought that colder weather would move into the area and give a boost to feed sales, but the cold failed to arrive and fair and crisp autumn weather lingers on.

Feed sales have followed a fairly consistant pattern during the last several weeks. Hog feeds move very well, remarkably so if we take into account the temptation that most feeders are faced with of using more and more of their low priced corn and cutting down on their supplements. Cattle feed sales are improving, but at a restrained rate. Moderate weather permits good usage of pastures to the detriment of cattle feed demand. Over-all poultry feed sales are down, the largest decline in layer feeds, however there is a definite trend to heavier sales of layer concentrates.

Mill running time is mostly four days. Plants closed for the Veterans Day holiday do not intend to operate over the week end to make up for the lost production.

Ohio Valley

Although some of the Ohio Valley manufacturers reported a somewhat stronger tone to the market and a slight increase in sales volume during the past week, most area mixers said the demand for formula feeds is continuing at the dull level noted during recent weeks, with no present indication that a substantial increase in tonnages is to be expected during the remainder of this year.

Over-production of poultry and eggs on valley farms during the last year has resulted in such a sharp price reduction that area farmers have been forced to reduce their flocks to the lowest in many years. As a result, the present market for poultry feeds of all types is described as "dead," with no likelihood that this situation will turn for the better until retail demands show considerable improvement.

Above-freezing temperature this week tended to further discourage farmers from buying additional supplies of formula feeds, thus removing an incentive among manufacturers to build-up inventories or increase operations above the present 4-5 day work week.

Mountain States

The week's sales volume in formula feed in this area has been about the same as the week before and is holding its own compared with a year ago at this time. Practically all of the feed businss at the present time has been for range cattle feed and dairy cattle feed.

Range cattle business is very good and this is one of the best years feed men have ever seen. That goes for feed lots in range cubes as well.

The turkey business in this area is about shot. All of the turkey dealers are pretty well cleaned out, and they have the turkeys put away in freezers for the expected heavy demand for the holidays.

Foreign exports of feeds are making the market stronger in this area, and it is really being felt now. There is no question about it. Exports have brought heavy increases in prices, especially on soybean meal and cottonseed meal.

Pacific Northwest

There was good demand for most lines of feeds as colder weather prevailed in the Pacific Northwest. This stimulated heavier supplemental feeding, and terminal mills in the region were operating 5-5½ days per week. Dairy feeds moved out in volume as dairymen maintained milk production on fewer stock. Poultry feeding held up good despite heavy marketings of turkeys during the past month.

Ingredient markets were featured by strength in oilseed meals, particularly soybean meal. Active domestic and export demand prevailed and offerings tightened. Cottonseed meal followed the strong trend in soybean meal with good domestic and export demand, too. Wheat millfeeds ruled unchanged but steady with good export interest in the background. Mill grind has been good. Alfalfa meals remained very firm due to relatively high hay prices. Fish meal prices took a sharp drop this week as supplies became burdensome. Other feeds were unchanged in slow trading.

Pacific Northwest feeding ratios averaged about unchanged with slightly improved conditions for egg mashes but slightly lower ratios for broilers and turkeys.

Harvesting of local field corn was nearly completed in Oregon and Washington areas. Prices weakened during the past week and were around $2 ton lower than eastern shipment grain, basis No. 2 yellow grade.

Alfalfa hay markets turned stronger under good buying interest and strong grower holding tendency. This year's crop slightly below last year in volume plus continued heavy feeding demands provided the main support.

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Texas Egg Operation Gets 72,000 Layers

NACOGDOCHES, TEXAS—About 72,000 of the initial goal of 150,000 layers planned already are housed here for the newly-organized Sunnycrest Farms, Inc.

The Ohio-based commercial egg operation is headed by C. W. Liechty, veteran poultryman from Wauseon, Ohio. A large building has been leased and renovated for offices and an egg station, according to a report in Poultry & Egg Weekly.

Mr. Liechty has decided on a two-fold operation which will include laying flocks and egg sales.

With Mr. Liechty in the venture are Keith Gerig of Indiana and Ted L. McCavitt of Ohio who have moved to Nacogdoches and will direct the business.

It is planned to space the pullet placings, putting down 3,000 per week until the first goal of 150,000 is reached. A 75,000 reserve then will be grown for replacement stock.

All flocks will be owned and supervised by Sunnycrest Farms and will be floor operations. The basis of the program will be the selling of name brand eggs. The company has the General Mills franchise for "Sure-Fresh" eggs for east Texas and west Louisiana.

CSC MOVES OFFICE

MINNEAPOLIS — The local office of Commercial Solvents Corp. has been moved to Room 928, First National Bank - Soo Line Building, Minneapolis 2, from 210 S. 5th St.

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